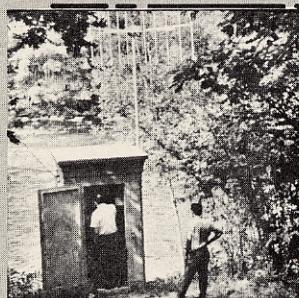


*see notes*  
R.H. - please  
recalculations  
for 400-613  
at 10% loss  
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# ANNUAL REPORT FY 1980 RESERVOIR CONTROL CENTER

CANADA



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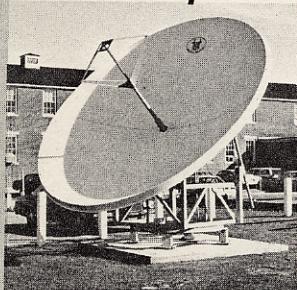
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From the Library of  
*New England  
River Basins Commission*

1967-1981

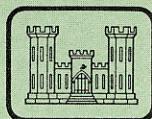
MASS.



CONN.

R.I.

U.S. ARMY ENGINEER DIVISION  
NEW ENGLAND



WALTHAM, MASS.  
DECEMBER 1980

N-W  
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**DEPARTMENT OF THE ARMY**

**NEW ENGLAND DIVISION, CORPS OF ENGINEERS**

**WALTHAM, MASSACHUSETTS**

**RESERVOIR CONTROL CENTER**

**ANNUAL REPORT**

**FISCAL YEAR 1980**

**DECEMBER 1980**

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## A. SCOPE OF REPORT

This publication describes the activities and accomplishments of the Reservoir Control Center during the fiscal year 1980. Information on the regulation of reservoirs and hurricane barriers within the New England Division is summarized. The status of special studies and investigations is reviewed, and future objectives are also presented.

## B. REFERENCES

The report was prepared in accordance with ER 1110-2-1400, subject: "Reservoir Control Centers," dated 24 April 1970; ER 1110-2-240, "Reservoir Regulation, dated 22 April 1970; and OCE 1st Indorsement to NED, dated 1 October 1968, subject: "Establishment of Reservoir Control Center." Since this report is an annual supplement to the Reservoir Control Center Guidance Memorandum of September 1971, duplication of information, charts, maps, etc. contained in the memorandum has been kept to a minimum.

## C. ORGANIZATION AND PURPOSE

The New England Division Reservoir Control Center (RCC) was approved by the Chief of Engineers in October 1968 and is a section within the Water Control Branch of the Engineering Division. Responsibilities of RCC encompass regulation activities at all projects, collection of hydrometeorological data associated with regulation needs, coordination of information and special studies. Specific responsibilities include the following:

1. Directing the regulation of reservoirs and hurricane barriers within NED.
2. Collecting, analyzing, interpreting, and updating hydrologic and meteorologic data for regulation purposes.
3. Coordinating regulation activities among Corps, Federal, State and local personnel that are directly affected.
4. Preparing and continually updating regulation plans and manuals for individual and systems of reservoirs, hurricane barriers and local protection projects.
5. Training of Corps office and field personnel responsible for regulation activities, and personnel of communities responsible for the operation of local protection projects and hurricane barriers.

Other elements of the Water Control Branch, namely the Hydrologic Engineering Section and the Hydraulics and Water Quality Section, provide technical assistance and manpower for reservoir regulation activities during flood alerts and special studies. The organizational structure of the branch and major duties of each section are

summarized in plate 1. The organizational chart for reservoir regulation is shown on plate 2.

#### D. GENERAL BACKGROUND

The Corps has completed 35 dams, 64 local protection works and 4 hurricane barriers within the New England Division; and 1 hurricane barrier and 7 local protection projects are currently under construction. Thirty-one of the 35 reservoir projects and 2 of the 4 hurricane barriers are operated and maintained by the Corps, while the remaining projects, including local protection, are operated and maintained by local interests. Although most of the construction prior to 1955 was authorized for flood control purposes only, approval for other uses at many of these reservoirs has been made as new water resource needs in the basins evolved. Most of the newer projects have been built for multipurpose usage such as flood control, low flow augmentation, recreation; and two have significant storage for water supply. At present no NED reservoir is operated for irrigation, navigation, or hydroelectric power purposes.

#### E. ACCOMPLISHMENTS OF RCC DURING FISCAL YEAR 1980

##### 1. Regulation Manuals

a. Completed the revised Thames River Basin Master Manual of Water Control, which includes regulation procedures for Mansfield Hollow, Buffumville, Hodges Village, East Brimfield, Westville and West Thompson Reservoirs.

b. Completed the revised Blackstone River Basin Master Manual of Water Control, which includes regulation procedures for West Hill Dam.

c. Initiated work on the Flood Operating Procedures, Appendix B of the Park River Operation and Maintenance Manual. The Park River conduit is part of a large local protection project in Hartford, Connecticut. The flood operating procedures are 90 percent complete and will be finished during the first quarter of FY 81.

d. No additional work was accomplished during the year on the main report of the Connecticut River Basin Master Manual of Water Control. This has no adverse impact on Reservoir Control Center activities, however, because Appendices A, B, C, D, E, F, G, H, J, which contain instructions on reservoir regulation procedures for the 16 Corps-built reservoirs in the basin, have been approved (refer to plate 4).

##### 2. Studies

a. ER 1130-2-419, "Dam Operations Management Policy," dated 18 May 1978, requires an emergency safety plan to be prepared by NED for each Corps dam. Present plans call for this program to be completed in the 4-year period FY 80-83. RCC has been partially

involved in preparing the following:

- (1) Reservoir dewatering procedures
- (2) A summary of conditions leading to emergency situations and methods of dealing with them
- (3) An emergency notification procedure
- (4) Dam failure inundation maps

### 3. Data Collection

a. AHRRN. The Automatic Hydrologic Radio Reporting Network continues to provide RCC with continuous, reliable, real time data for water control purposes for the eleventh consecutive year. No major problems were encountered with the exception of a lightning strike in September at the Indian Orchard gage. Vandalism was unusually low this year, with only a few antennas misaligned.

Three reporting stations now operate with solar power cells, i.e., gages at West Lebanon, New Hampshire, Rainbow, Connecticut and Goffs Falls, New Hampshire.

b. Landsat. Collection of hydrologic data by Landsat was terminated in FY 80, thus ending almost 8 years of beneficial involvement in an experimental program that brought awareness and operational use of satellites to NED. Most of the data collection equipment which was loaned to us under the Landsat investigations has been returned to NASA; and the remainder, with the exception of the 15-foot diameter receiving antenna, will be returned in FY 81.

c. GOES. The GOES data collection system implementation has progressed in accordance with NED's 1979 Master Plan entitled: "Water Control Data System" with only minor modifications up to the present time. Plans still call for replacement of the AHRRN by a set of GOES random reporting data collection platforms and for data to be received at the satellite ground receive station in RCC. The new satellite data collection system has been dubbed "NEDSAT".

(1) Data Collection Platforms. The complex task of procuring 55 random reporting data collection platforms has been deferred until early FY 81. Funds have been reprogrammed into FY 81 for this purpose. Unavoidable delays occurred in 1980, due to a temporary recall of funds in the Plant Replacement and Improvement Program, but the extra time was used to refine the performance requirements of the units. The design of the DCP's affects a large user community consisting of many other agencies, which include National Weather Service, U.S. Geological Survey, Water and Power Resources Service.

(2) Receiving Antennas. A start was made on improving GOES data reception at NED by acquisition of a new 5-meter parabolic

antenna and by modifying the 15-foot Landsat antenna for use with GOES. Work on the antennas began in September 1980 and was scheduled for completion within 2 months.

(3) Portable Data Terminals. One of the functions which must be continued as NEDSAT becomes the operational data collection system is the dissemination of hydrologic data to basin regulators during nonwork hours. For this purpose 5 portable Texas Instruments "Silent 700" data terminals have been acquired. Basin regulators will be able to dial up the RCC minicomputer from their homes at any time to obtain the latest hydrologic information which has come over the satellite.

(4) Demodulator. Procurement of an improved GOES data demodulator has slipped into FY 81. No setbacks will occur as a result of the delay because other essential system components are also being obtained in FY 81.

(5) Video Displays. New color video monitors have been installed in both RCC and Emergency Operations Center for continuous and immediate display of hydrologic data by minicomputers of the Water Control Data System.

(6) Joint NED/EPA Radiation Warning System - The U.S. Environmental Protection Agency and NED have agreed to join in a co-operative project to monitor possible leaks of radiation from Three Mile Island nuclear plant in Middletown, Pennsylvania. EPA selected this Division because of our advanced situation in implementing a random reporting data collection system on the GOES satellite. To carry out this project, EPA will deploy radiation sensors and data collection platforms, and NED will receive the data from the satellite and automatically disseminate it to the Nuclear Regulatory Commission and EPA.

#### 4. RCC Meetings With Others Concerning Regulation Activities

1979  
October

Met with personnel of Beck Associates to discuss hydropower development on the Black River and its impact of North Springfield Lake.

Traveled to Fredericton, New Brunswick, Canada to attend workshop on Saint John River sponsored by World Meteorological Organization.

Traveled to Goddard Space Flight Center, Greenbelt, Maryland to discuss GOES data collection activities.

Gave presentation at Littleville Lake to a Forest Hydrology class of the University of Massachusetts.

Traveled to Panama Canal to discuss data collection and water control activities.

November

Briefed Mr. Mark Aldrich of Senator Humphrey's office on Corps regulation activities in New Hampshire.

December

Traveled to Goddard Space Flight Center to discuss GOES random reporting system.

1980

January

Visited Silver Spring, Maryland to participate in GOES Hydromet Working Group meeting.

Traveled to CRREL, Hanover, New Hampshire to discuss SSARR computer basin model.

February

Visited Keene, New Hampshire to meet with city officials to discuss on-going flood insurance study and Corps regulation activities.

Traveled to Bay St. Louis to participate in GOES Technical Working Group meeting and present a proposal on standard format on random reporting.

Gave presentation to 15 students and faculty members of Massachusetts Institute of Technology on the Corps water resource management activities within the Charles River watershed.

March

Traveled to Suitland, Maryland to meet with personnel from NESS and USGS to establish a standard format for random reporting on GOES.

Visited Vernon, Bellows Falls and Wilder hydroelectric dams on the Connecticut River to review their facilities and operating procedures during flood periods.

April

Traveled to Boulder, Colorado for meeting at DOC, Institute for Telecommunications Sciences to establish certification standards for GOES data collection platforms.

Traveled to Keene, New Hampshire with personnel from Flood Plain Management Branch to discuss nonstructural flood prevention measures at a public meeting.

Traveled to San José, Costa Rica to give presentation at United Nations seminar on remote sensing for developing nations to 100 technical representatives from Latin American Governments. Gave second presentation to 800 attendees of 14th International Symposium on Remote Sensing of Environment.

May

Traveled to Hartford, Connecticut to meet with city and Metropolitan District officials concerning the Park River conduit and proposed regulation procedures for the pumping stations.

Met with State officials and representatives of Continental Hydro in Montpelier, Vermont to discuss proposed Dewey Mills hydroelectric facility located within the North Hartland reservoir.

Visited Massachusetts Institute of Technology to critique student proposals on Charles River watershed studies.

Met with local officials in Northampton, Massachusetts to discuss streambank erosion problems on the Connecticut and Deerfield Rivers.

July

Met with personnel of the Hartford, Boston and Concord, New Hampshire USGS offices and reviewed the cooperative stream gaging program for FY 1981.

Gave presentation on satellite data collection at ASCE Conference "Transportation and Development Around the Pacific" in Honolulu, Hawaii.

August

Met with personnel of the Public Service Company in Concord, New Hampshire to discuss low flow releases on the Merrimack River and their FERC license renewals.

September

Visited ERT in Concord, Massachusetts for coordination meeting with USGS, ERT and Corps on satellite data collection program.

Accompanied Mr. Mahendra K. Singhal, Director U.P. Irrigation Research Institute of India on tour of upper Thames River basin. Mr. Singhal is attending Harvard on a fellowship program involved in water resources and data acquisition.

Traveled to Augusta and Anson, Maine to inspect a newly installed GOES data collection platform and discuss its features with USGS personnel.

September (cont.)

Visited Hoague Sprague Company dam in Hopkinton, New Hampshire to discuss their proposed hydropower development located immediately downstream of Hopkinton dam.

5. Training of Personnel

a. Field Personnel. RCC personnel visited the following projects to discuss regulation procedures with the project managers and assistants or to observe hydraulic/hydrologic conditions in the watershed areas.

Connecticut River

Surry Mountain  
Otter Brook  
Tully  
Knightville  
Littleville

Naugatuck River

Thomaston  
Black Rock  
Hop Brook

Hurricane Barriers

New Bedford

Thames River

Buffumville  
Hodges Village  
West Thompson  
Mansfield Hollow

Merrimack River

Franklin Falls  
Hopkinton

Blackstone River

West Hill

b. RCC Personnel. In addition to continued on-the-job training, the following courses were taken by RCC personnel:

Office of Personnel Management

Project Management Course  
Advanced Management Seminar  
Managing Public Contacts  
Creative Problem Solving

Report Writing Workshop  
Performance Appraisal and Standards  
Avoiding Professional Burnout  
Supervision and Group Performance

c. Non-Federal Personnel. RCC staff visited the Saxonville, Hartford, Ansonia and Derby local protection projects to review regulation procedures with local officials.

6. Regulation of Reservoirs

a. General. Flood control is the primary function of all 35

dams, and most of the regulation activities are conducted for this purpose. Other limited reservoir uses include water supply, low flow augmentation and recreation. Winter pools are also maintained at many reservoirs to keep the flood control gates submerged to prevent them from freezing.

There is no flood-free season in New England. During the spring snowmelt period, which usually occurs in March and April in southern areas and April and May in northern regions, several weeks of regulation within a watershed are an annual occurrence. Hurricanes pose a potential problem each year during the summer and autumn months. Coastal storms occur frequently during the autumn, winter and spring months.

b. Flood Control. The winter drought ended during the first week in March when precipitation returned to New England on 3 to 4 day intervals with light to moderate rainfall until the 21st when a large and intensifying storm moved slowly off the southern coast of New England, dumping 2 inches of rain in the southern and eastern areas to 6 inches in western Connecticut and Massachusetts. Northern areas in New Hampshire and Vermont received only light precipitation from this storm. Rainfall amounts of 4 to 6 inches in western New England caused the highest observed flood levels on the Westfield and Farmington Rivers since October 1955. Record storage levels were observed at Littleville Lake (51 percent), Mad River Dam (19 percent) and Hancock Brook Lake (36 percent) (see plate 3). The benefits attributed to Knightville and Littleville reservoirs were \$33,860,000 in Westfield and were associated with an 8-foot reduction in water levels. In the Farmington River the reservoir system prevented damages approximating \$3,710,000. In the Naugatuck River Valley the total benefits amounted to about \$35 million. In the Thames River basin, benefits amounted to \$1.7 million.

On 9-10 April, heavy shower activity occurred over the entire New England area. Rainfall amounts ranged up to 4 inches in southern Connecticut, 3 inches in the Berkshires with 1 to 2 inches in Vermont and New Hampshire. This event caused the highest flows for the year along the main stem of the Connecticut and Merrimack Rivers, on the tributaries to the Connecticut River in Vermont and New Hampshire, and the Pemigewasset River watershed.

The remainder of the year has generally had normal or below normal rainfall with no significant regulation for flood control purposes.

c. Other Regulation Activities

(1) Ball Mountain Lake. This project was regulated in October 1979 and May 1980 for AMC sponsored white water canoeing events. Flows of 1,200 and 1,400 cfs were provided on 6 and 7 October. This release was accomplished in connection with the draw-down of the summer pool to the winter pool.

In late April and May the stage was gradually built up

to about 100 feet to insure a continuous flow of 1,500 and 1,200 cfs for the races on 3-4 May, respectively.

(2) Birch Hill Dam. Controlled releases were made from Birch Hill to assure adequate downstream river stages on the Millers River in Athol for more than 420 canoes in the annual "Millers River Rat Race" on 5 April 1980. An estimated 10,000 spectators watched the race.

(3) Tully Lake. Controlled releases were also made for the "Millers River Rat Race" on 5 April 1980.

(4) Knightville Dam. Releases of about 1,000 cfs were made on 14 June for a canoe race sponsored by the Westfield River Watershed Association, Inc. with approximately 150 participants. In March controlled releases of 900 cfs were made on two weekends for practice events with over 400 participating canoes.

(5) Mansfield Hollow Lake. The recreation pool was gradually raised from 17 to 20 feet during the first two weeks of June to provide water for controlled releases of 900 and 1,200 cfs on 14-15 June, respectively, for the "Shetucket River Days" outing and canoe race sponsored by the Windham Regional Planning Agency.

(6) West Thompson Lake. The 13-foot recreation pool was raised about 2 feet on several occasions to provide satisfactory water levels for various "Shoreline Retriever Club" trials on 20 April, 30 May, 1 June, 12-13 July and 12-14 September.

Boat races sponsored by the American Power Boat Association were held 21-22 June and 26-27 July and the Yankee Power Boat Racing Association was held on 19-20 July.

(7) Colebrook River Lake. Releases were made from the fishery pool during June, July, August and September to maintain a satisfactory flow regimen in the Farmington River. These releases were coordinated with the Connecticut Department of Environmental Protection, Board of Fisheries and Game.

(8) East Brimfield. The American Optical Company of Southbridge, Massachusetts owns 1,140 acre-feet of storage between the stages of 9 and 13 feet. They made no requests for releases during the year.

## 7. Regulation of Hurricane Barriers

The Stamford hurricane barrier was operated on 12 occasions with estimated benefits of \$80,000 and the New Bedford-Fairhaven barrier was also operated on 12 occasions with benefits of \$150,000. Significant operations are shown in the following tabulation:

Predicted Tide Elevation (ft, NGVD)	Observed Peak Elevation in Feet NGVD	
	Ocean	Harbor
<u>Stamford</u>		
22 March 1980	4.6	7.4
<u>New Bedford</u>		
14 March 1980	2.7	5.0
6.2		
4.0		

The Fox Point barrier was not operated for storm conditions during the year.

8. Flood Control Benefits Associated with Regulation at Reservoirs, Local Protection Projects and Hurricane Barriers. A tabulation of the estimated flood damages prevented from 1 October 1979 through 30 September 1980 follows:

River Basin	Damages Prevented		
	Reservoirs	Local Protection Projects	Total
Connecticut	\$37,570,000	\$ -	\$37,570,000
Merrimack	-	-	-
Thames	1,673,000	-	1,673,000
Housatonic	34,968,000	58,000	35,026,000
Blackstone	-	-	-
Hurricane Barriers	-	<u>230,000</u>	<u>230,000</u>
TOTAL	\$74,211,000	\$288,000	\$74,499,000

9. National Dam Inspection Program. Public Law 92-367, dated 8 August 1972 authorized the Secretary of the Army through the Corps of Engineers to initiate a national program of dam inspection throughout the United States.

Reservoir Control Center personnel provided considerable assistance in this inspection program during FY 1980 by reviewing the hydrologic and hydraulic aspects of 105 reports prepared by consulting engineers. This inspection program continues to have a significant impact on the RCC workload during the year.

10. Federal Energy Regulatory Commission (FERC) Activities. In the issuance of renewal licenses to dams which have significant hydropower facilities, FERC requires that some applicants obtain the Corps of Engineers approval on the operating procedures during flood periods. This approval is required to insure that the hydroelectric facilities will have no significant adverse impact on downstream floodflows. During the year RCC personnel performed in-depth reviews and analyses of the New England Power Company's regulation procedures for the Vernon and Bellows Falls projects on the Connecticut River. This review included recommendations which resulted in the complete updating of NEPCO's procedures in a new and detailed format.

#### F. DATA COLLECTION AND COMMUNICATION FACILITIES

The Guidance Memorandum and previous Annual Reports contain a thorough discussion of RCC activities in data collection. The facilities are reviewed annually and updated as necessary in terms of required coverage, reporting criteria and system reliability.

#### G. STATUS OF RESERVOIR REGULATION MANUALS

The status of regulation manuals for completed projects is contained in plate 4.

#### H. FUTURE OBJECTIVES

##### 1. Data Collection

a. GOES. In FY 1981 the GOES random reporting data collection system ("NEDSAT") is scheduled for completion as proposed in the NED document: "Water Control Data System - Master Plan," dated March 1979. Key remaining steps are to acquire DCP's, install them, and finish modifications to the ground receive station.

Minor modifications to the ground receive station will be completed by the second quarter, and the DCP project is scheduled for completion by the end of the fiscal year.

As NEDSAT is phased in as the operational data collection system, new software must be written for the RCC minicomputer in order to accomplish the following:

(1) A multitasking program for the Data General minicomputer which will simultaneously decode and log incoming hydrologic data, control video displays, handle telephone data calls, provide charts, graphs and summaries, maintain files, and tally DCP performance.

(2) The Franklin Falls flood forecasting program must be modified to accept GOES data.

(3) Simulation of GOES random reporting in order to: (a) predict interactions of groups of DCP's reporting on the same channel so that the DCP's may be programmed correctly, and (b) supervise performance of DCP's with respect to their reported data.

An operational manual for NEDSAT is being prepared by RCC concurrent with system development. The manual will be suitable for documentation, reference, operating instructions, trouble-shooting, and maintenance.

b. AHRRN. The AHRRN is scheduled to be operated and maintained until NEDSAT is operational or until December 1981 when contract services for the AHRRN ends, whichever comes later.

2. Reservoir Regulation Studies. Regulation manuals and SOP's are vital documents to the water control responsibilities of the Corps. The extensive Hartford Local Protection Project has combined flood protection works along the Connecticut and Park Rivers. In FY 81 a complete O&M manual will be prepared for the entire Hartford LPP and will include the new operating procedures for the Park River conduit and updated operating procedures for the Connecticut River portion.

Continued emphasis will be given in FY 81 to complete the Master Manual for the Connecticut River basin; in addition a review of the regulation manuals for the Stamford and New Bedford barriers and the Ottauquechee and Black River watersheds will be undertaken to determine the need of revising them as they were prepared more than 10 years ago.

In the next several years it is anticipated that RCC will be involved in many reviews, studies, discussions concerning the possible use of reservoir storage/facilities at Corps operated dams. This involvement will insure that any proposal will not have a significantly adverse impact on flood control storage or regulation procedures.

## I. FUNDING

The Reservoir Control Center obtains funds from several sources for its varied activities. The annual Operation and Maintenance budget includes funds for the normal operation of the Control Center, such as salaries for personnel involved in reservoir control matters, costs for the USGS Cooperative Stream Gaging Program and National Weather Service Hydroclimatic Network, and monies for leasing and amortizing equipment used by the Control Center. Funds are also obtained from the Plant Replacement Program for purchase of major items such as computers, displays, and hydrologic equipment not associated with any specific project. The National Dam Inspection Program provided funds for the RCC review process associated with the Phase I

study of non-Federal dams. Regulation studies performed for Survey Reports and Design Memorandums are charged to the respective projects. New regulation manuals are prepared while projects are under construction.

#### J. RETIREMENT

Mr. Saul Cooper, former Chief of both the Reservoir Control Center and Water Control Branch, retired after 32 years of Federal service. Saul was instrumental in establishing the Reservoir Control Center and was the prime motivator in implementing the AHRRN, Landsat and GOES data collection systems at NED. His efforts will long be remembered.

## ORGANIZATION AND FUNCTIONS CHART

**ORGANIZATION**  
**ENGINEERING DIVISION**  
**WATER CONTROL BRANCH**

Sarandis, G.\* Supv Hyd Eng.  
 Cotter, M. Secretary  
 Clarke, A. Clerk-Typist  
 Healey, A. Stay-in-School

Reservoir Control Center

Finegan, J *	Supv Hyd Eng
Mirick, R	Hyd. Eng.
Doherty, R	Hyd. Eng
Buckelew, T	Hydrologist
Forbes, N.	Hyd. Eng.
Hetu, P	Eng Tech
Segien, M	Stay-in-School
Manning, L.	Stay-in-School

Hydrologic Engineering Section

Manley, P *	Supv Hyd Eng
Donati, O	Hyd. Eng
McMillan, F	Hyd. Eng
Michielutti, R	Hyd. Eng
Marinelli, P	Hyd Eng
Geib, M.	Hyd Eng
Messuri, D.	Hyd. Eng.

Hydraulics and Water Quality Section

D'Buono, R *	Supv Hyd Eng
Buelow, D	Hyd Eng.
Wener, C.	Hyd Eng.
Barker, T	Hyd Eng.
Wood, D.	Hyd Eng
Hugh, P	Civ Eng

Marine Science Unit

Hard, C	Geologist, Special Asst
Knowles, F	Phys. Scientist
DeFilippo, R	Geologist
Habel, M.	Geologist (Temporary)
DiLuca, L	Stay-in-School

Reservoir Management

Reservoir Regulation  
 Reservoir Manuals  
 Hydrologic Equipment Coordination

Data Collection

Coord w/USGS, NWS  
 Auto Hydro System  
 GOES Random Reporting Exper.  
 Data Analysis

Special Studies

River Forecasting Techniques  
 Low Flow Studies  
 Special Reservoir Studies  
 Review of Non-Federal Dams

Planning

River Basin Studies  
 Urban Studies  
 Reservoir Systems Studies  
 Flood Control Investigations  
 Hydropower Investigations

Design

Multipurpose Reservoirs  
 Channels and Conduits  
 Dikes and Walls

Informational Studies

Flood Plain Information  
 Hyd Eng for Flood Insurance  
 River Basin Models  
 Hyd Eng for Dam Inspection Prog

FUNCTION ASSIGNMENTS

Hydraulic Design and Analysis

Reservoir Water Control Structures  
 Local Protection Projects  
 Hurricane Barriers  
 Streambank Erosion Studies

Water Quality Management

Reservoir Prediction Studies  
 Reservoir Management Studies  
 Special Lake and Stream Studies  
 Mathematical Modelling

Informational Studies

Tidal Aspects  
 Flood Plain Information  
 Flood Insurance  
 Review of Non-Federal Dams

Environmental Monitoring

Physical, Chemical, Biological  
 Data Collection and Quality Assurance  
 Data Analysis and Interpretation

Inshore and Continental Shelf Studies

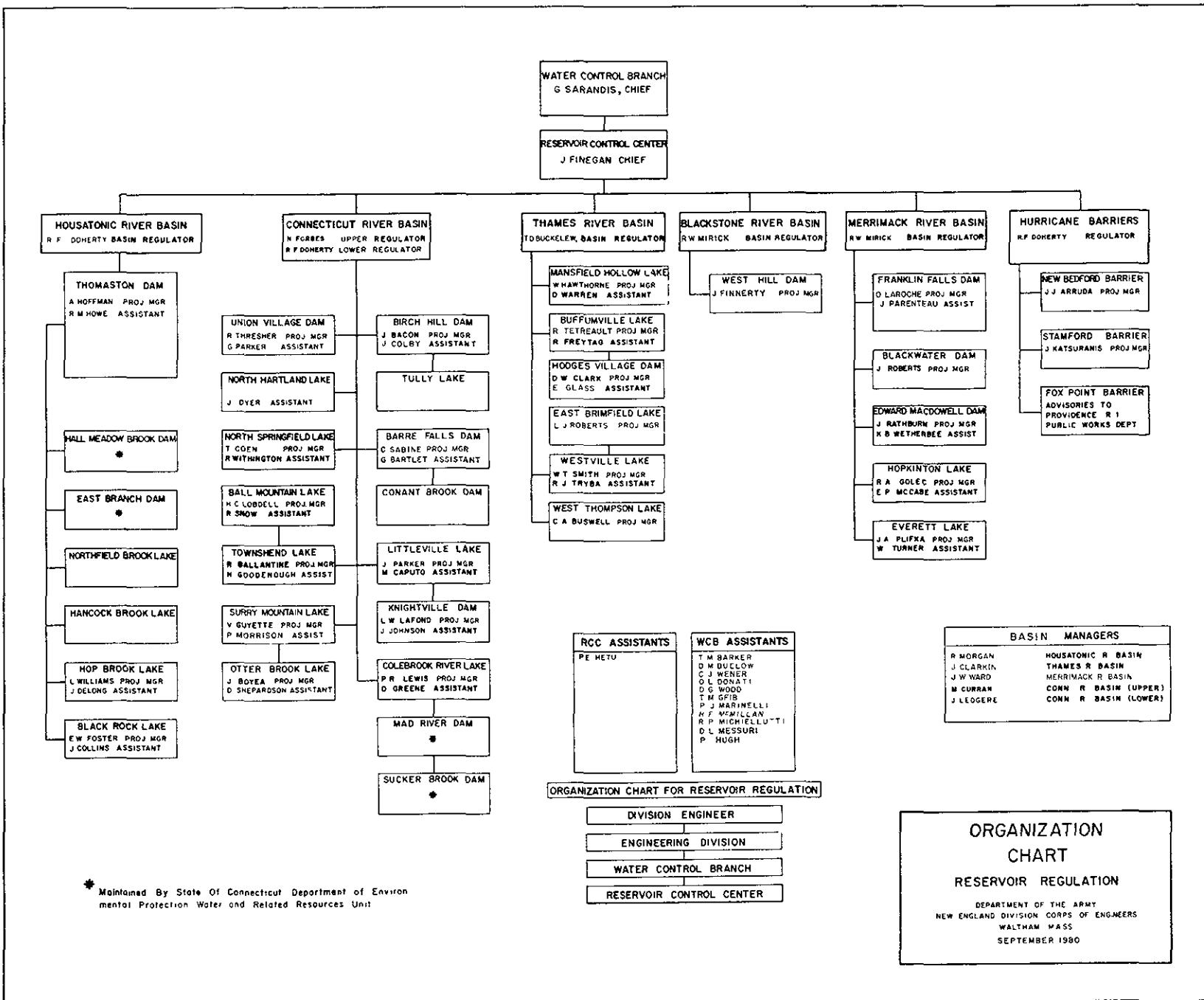
Dredged Material Studies  
 Disposal Area Monitoring System (DAMOS)  
 Harbor Characterization  
 Marine Analysis and Reporting System (MARS)

Special Studies

Physical Oceanography  
 Marine Geology and Geophysics  
 Microbathymetry  
 Marine Chemistry  
 Benthic Population Dynamics  
 Applications Research

Current Table of Organization  
 September 1980

\* Chief



MAXIMUM RESERVOIR IMPOUNDMENTS

<u>Reservoir</u>	1 Oct 1979 - 30 Sep 1980			Period of Record			<u>Placed in Operation</u>
	<u>Stage</u> (ft)	<u>% Full</u>	<u>Date</u>	<u>Stage</u> (ft)	<u>% Full</u>	<u>Date</u>	
Union Village	55.5	7	Apr 80	114.2	53	Apr 69	1950
North Hartland	63.5	15	Apr 80	128.2	63	Apr 69	1961
North Springfield	42.6	19	Apr 80	78.8	69	Apr 69	1960
Ball Mountain	122.6	21	Apr 80	197.8	82	Apr 69	1961
Townshend	41.7	12	Apr 80	80.3	65	Apr 69	1961
Surry Mountain	36.1	29	Apr 80	58.0	79	Mar 48	1941
Otter Brook	40.8	14	Mar 80	82.6	71	Apr 69	1958
Birch Hill	17.0	17	Mar 80	26.6	46	Mar 79	1941
Tully	22.4	17	Mar 80	32.3	51	Apr 60	1949
Barre Falls(1)	785.9	16	Mar 80	798.0	55	Apr 60	1958
Conant Brook(2)	15.7	5	Mar 80	20.0	8+	Jan 79	1966
Knightville	96.6	46	Mar 80	130.2	100+	Jan 49	1941
Littleville(1)	551.8	51	Mar 80	551.8	51	Mar 80	1965
Colebrook River (1)	729.8	30	Apr 80	739.8	53	Jul 72	1969
Mad River (2)	67.3	19	Mar 80	67.3	19	Mar 80	1963
Sucker Brook(2)	14.4	8	Mar 80	25.2	24	Dec 73	1970
Franklin Falls(1)	330.0	13	Apr 80	376.0	76	Mar 53	1943
Edward MacDowell(1)	924.8	27	Mar 80	938.0	65	Mar 79	1950
Hopkinton(1)	392.5		Mar 80	405.0			1962
Everett(1)	351.5	7	Mar 80	397.1	44	Apr 69	1961
Blackwater(1)	540.5	8	Apr 80	561.6	72	Apr 69	1941
Hodges Village	15.8	18	Mar 80	23.4	44	Mar 68	1959
Buffumville	19.5	18	Mar 80	28.4	43	Mar 68	1958
East Brimfield	20.2	18	Mar 80	23.8	35	Mar 68	1960
Westville	39.1	20	Mar 80	49.0	51	Mar 68	1962
West Thompson	29.3	25	Mar 80	37.5	47	Mar 68	1965
Mansfield Hollow	37.2	29	Mar 80	52.0	67	Aug 55	1952
West Hill	14.5	20	Mar 80	24.3	59	Mar 68	1961
East Branch(2)	33.7	21	Mar 80	38.1	28	Sep 75	1964
Hall Meadow(2)	19.5	16	Mar 80	20.6	18	Mar 79	1962
Thomaston	70.0	28	Mar 80	75.0	34	Mar 79	1960
Northfield Brook(2)	52.2	21	Mar 80	59.6	29	Mar 79	1965
Black Rock	68.7	28	Mar 80	78.7	41	Mar 79	1970
Hancock Brook(2)	19.0	36	Mar 80	19.0	36	Mar 80	1966
Hop Brook	45.9	26	Mar 80	50.7	35	Jan 79	1968

(1) Elevation of pool in feet msl  
 (2) Ungated project

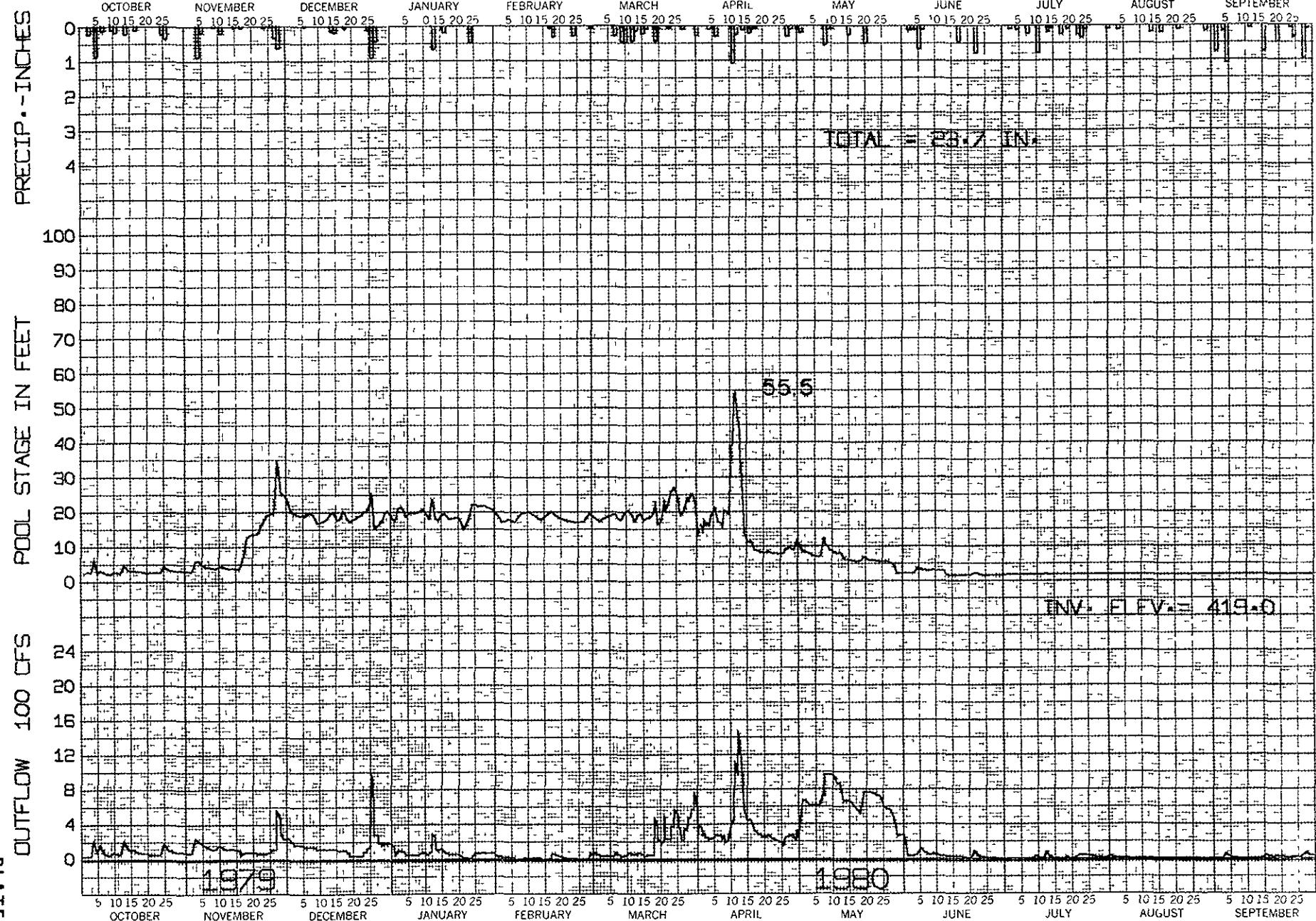
STATUS AND SCHEDULE FOR  
SUBMISSION OF REGULATION MANUALS

NEW ENGLAND DIVISION  
SEPTEMBER 1980

	<u>Status of Manual</u>	<u>Estimated Completion Date</u>	<u>O&amp;M by Local Interests</u>
	<u>Approved</u>	<u>Submitted</u>	
<u>Connecticut River Basin</u>			
Master Manual	-	-	
Union Village	X	May 71	
North Hartland	X	May 69	
North Springfield	X	Oct 69	
Ball Mountain	X	Sep 73	
Townshend	X	Sep 73	
Surry Mountain	X	Jan 72	
Otter Brook	X	Jan 72	
Birch Hill	X	May 74	
Tully	X	May 74	
Barre Falls	X	Feb 79	
Conant Brook	X	Feb 79	
Knightville	X	Jan 79	
Littleville	X	Jan 79	
Colebrook River	X	Jun 70	
Mad River	X	Jun 70	
Sucker Brook	X	Jun 70	X
<u>Merrimack River Basin</u>			
Master Manual	X	Sep 77	
Franklin Falls	X	Sep 77	
Blackwater	X	Sep 77	
Edward MacDowell	X	Sep 77	
Hopkinton-Everett	X	Sep 77	
<u>Thames River Basin</u>			
Master Manual	X	Jul 80	
Mansfield Hollow	X	Jul 80	
Buffumville	X	Jul 80	
Hodges Village	X	Jul 80	
East Brimfield	X	Jul 80	
Westville	X	Jul 80	
West Thompson	X	Jul 80	
<u>Blackstone River Basin</u>			
Master Manual	X	Jul 80	
West Hill	X	Jul 80	
<u>Housatonic River Basin</u>			
Master Manual	X	Oct 76	
Hall Meadow Brook	X	Oct 76	X
East Branch	X	Oct 76	X
Thomaston	X	Oct 76	
Northfield Brook	X	Oct 76	
Hancock Brook	X	Oct 76	
Hop Brook	X	Oct 76	
Black Rock	X	Oct 76	
<u>Hurricane Barriers</u>			
New Bedford-Fairhaven	X	Dec 69	X*
Stamford	X	Apr 69	X*

\* Navigational gates in project operated by Corps of Engineers

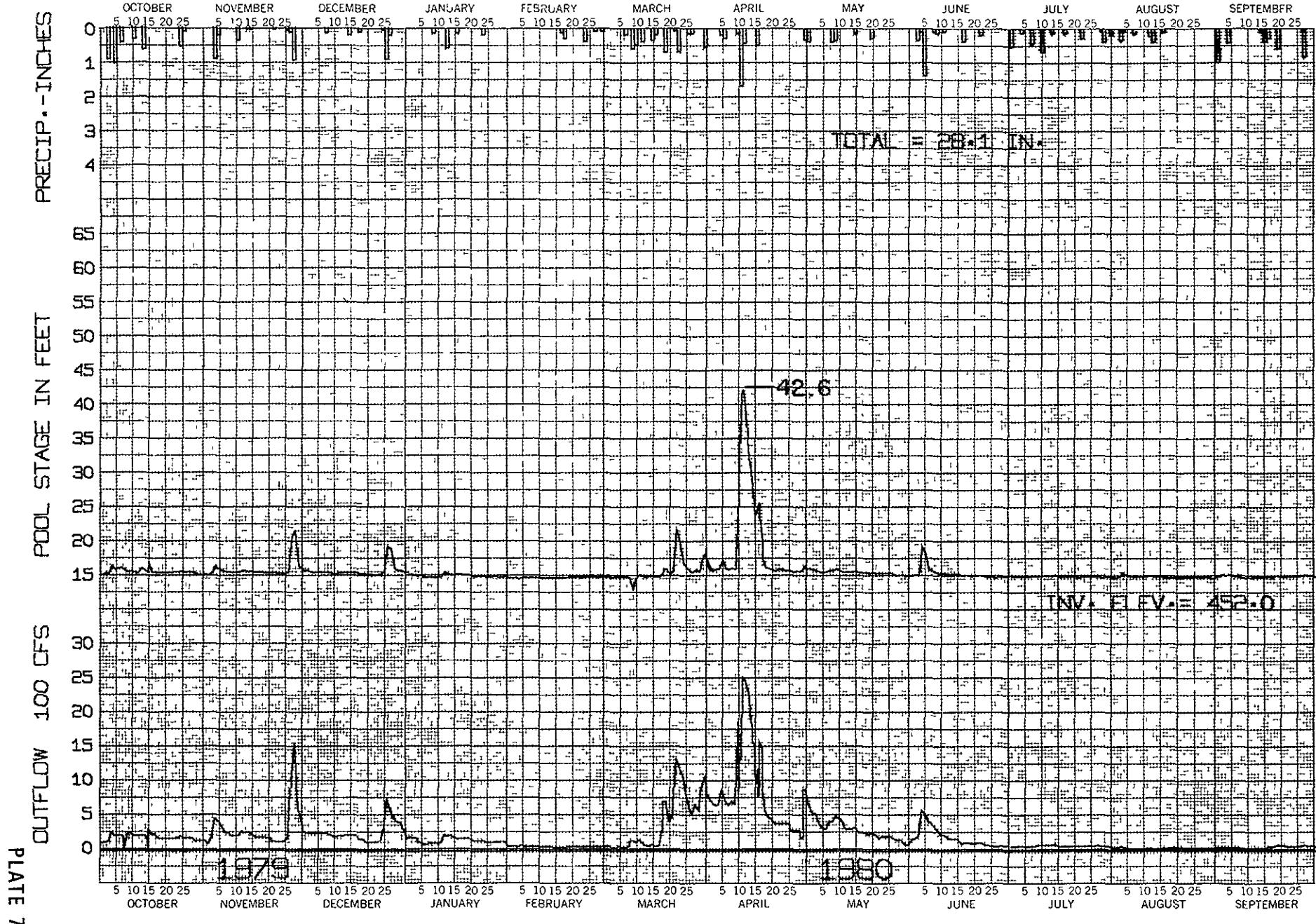
PLATE 5



RESERVOIR REGULATION - UNION VILLAGE DAM



RESERVOIR REGULATION - NORTH HARTLAND LAKE



RESERVOIR REGULATION - NORTH SPRINGFIELD LAKE

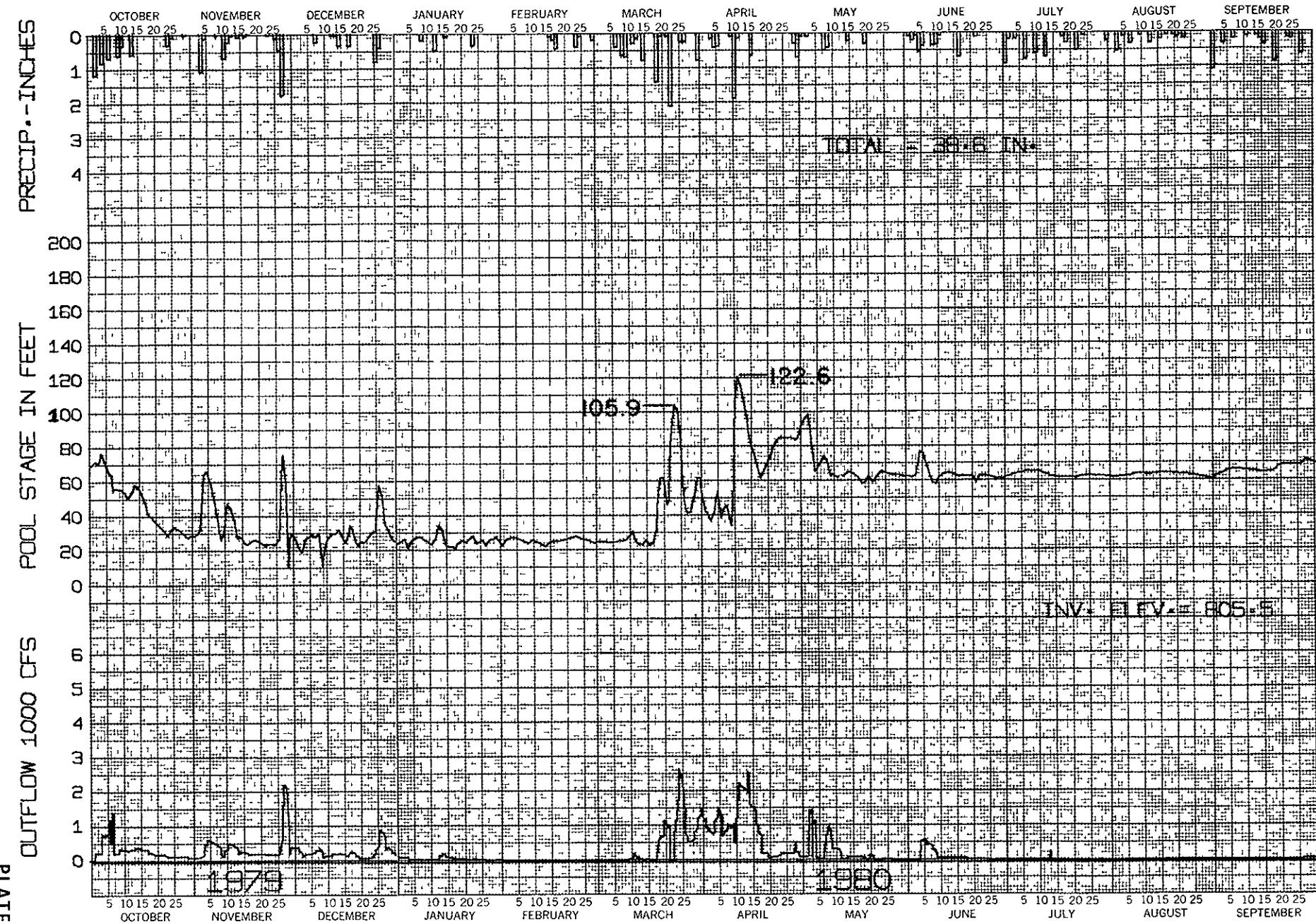
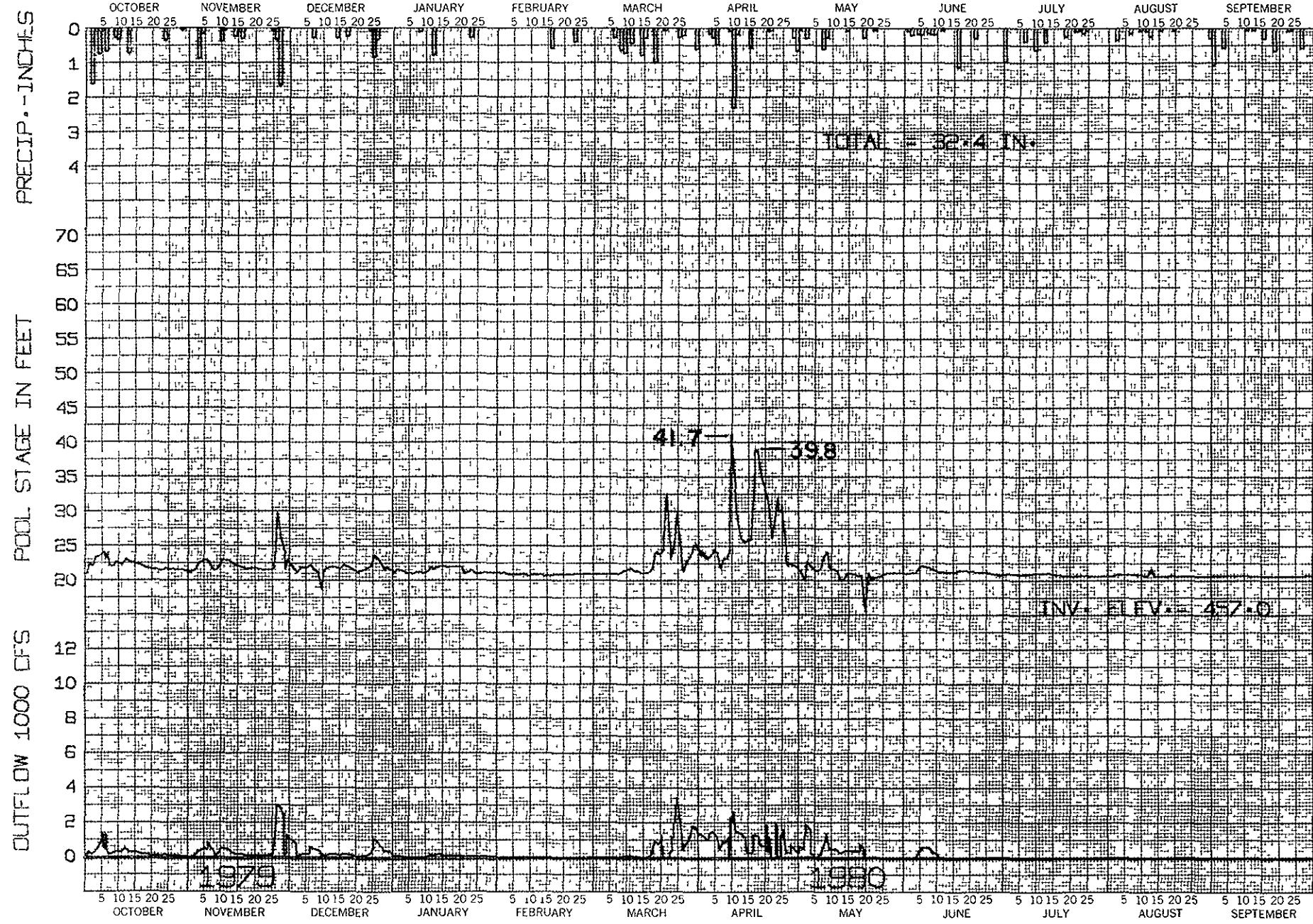


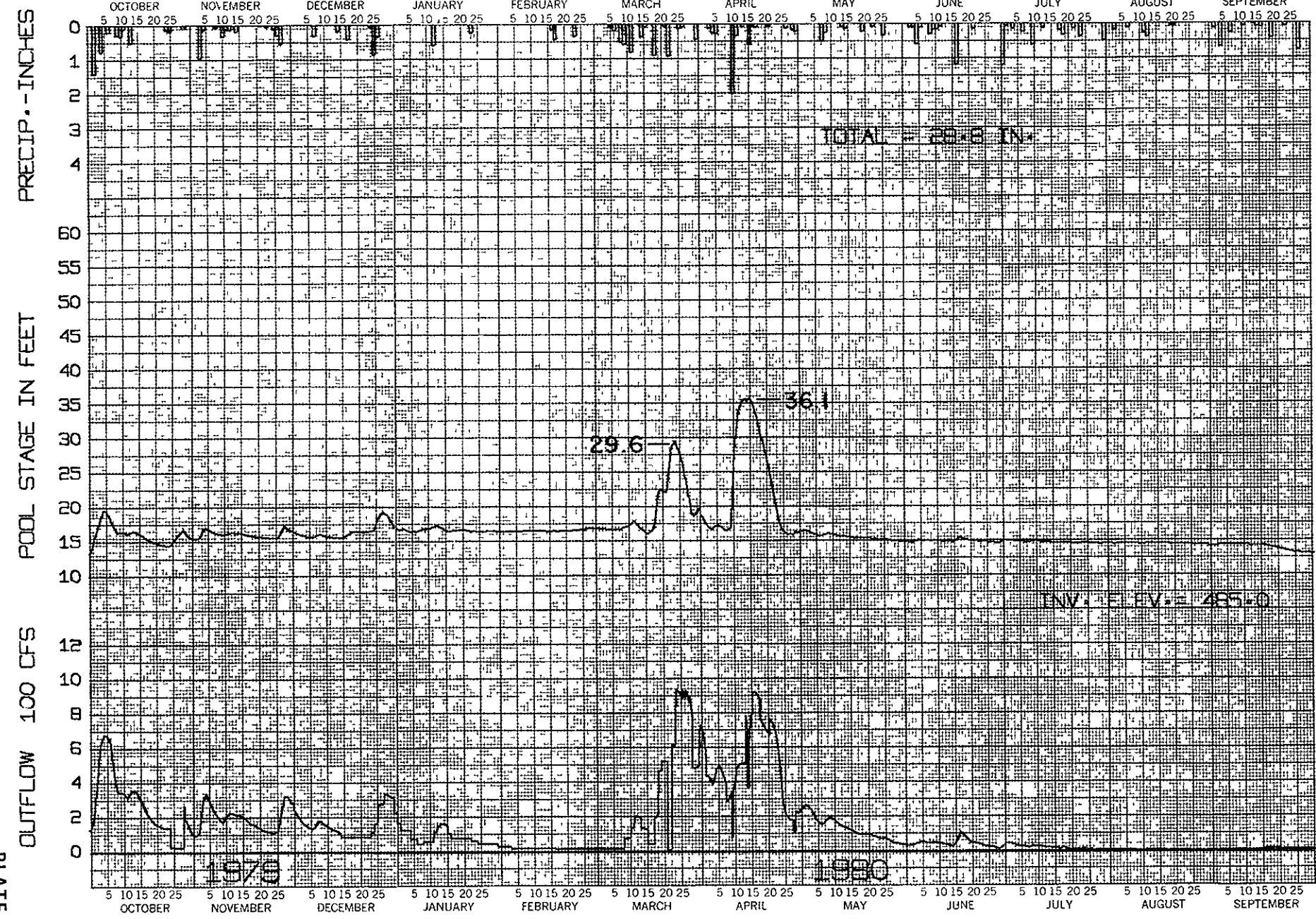
PLATE 8

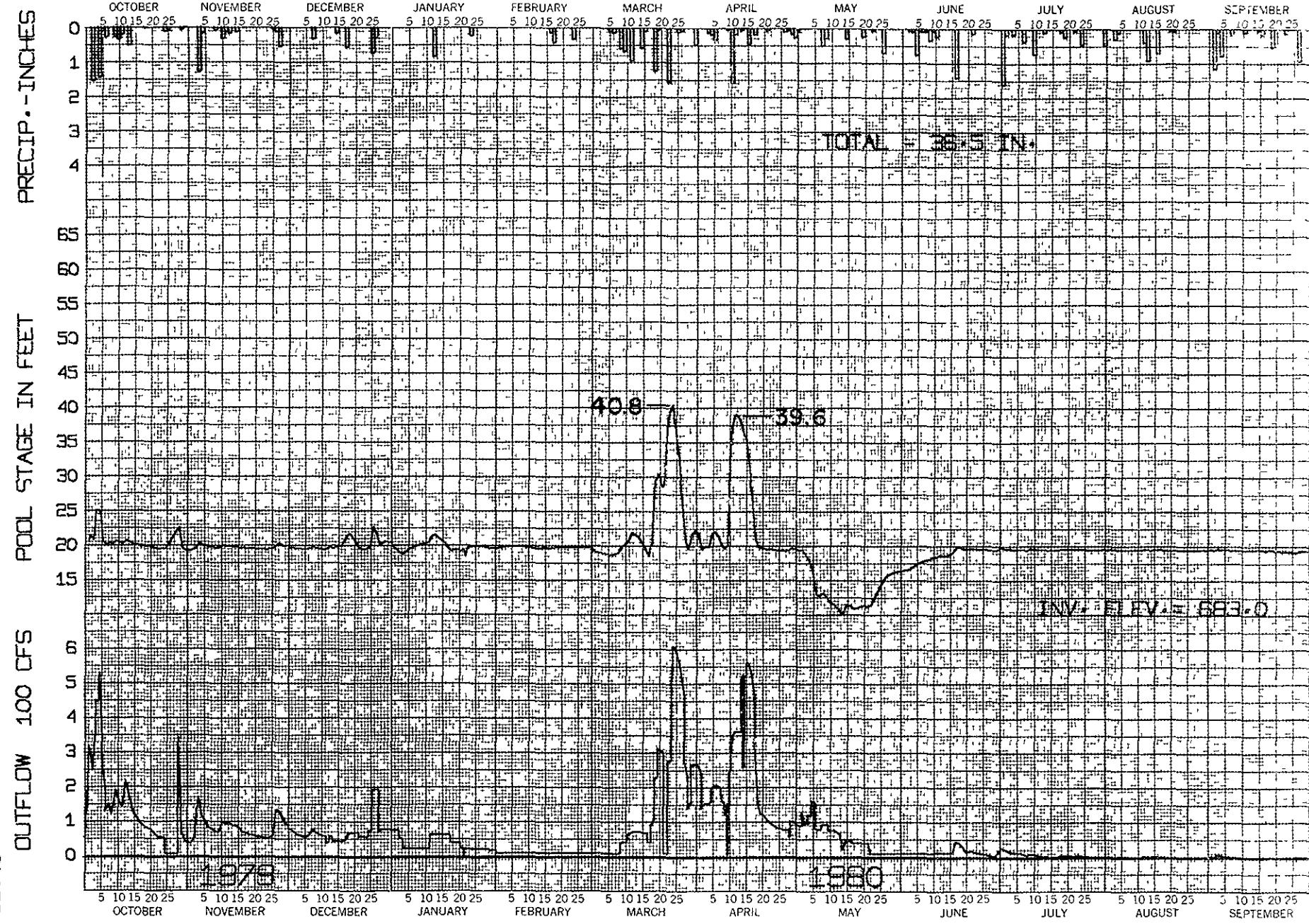
RESERVOIR REGULATION - BALL MOUNTAIN LAKE

PLATE 9



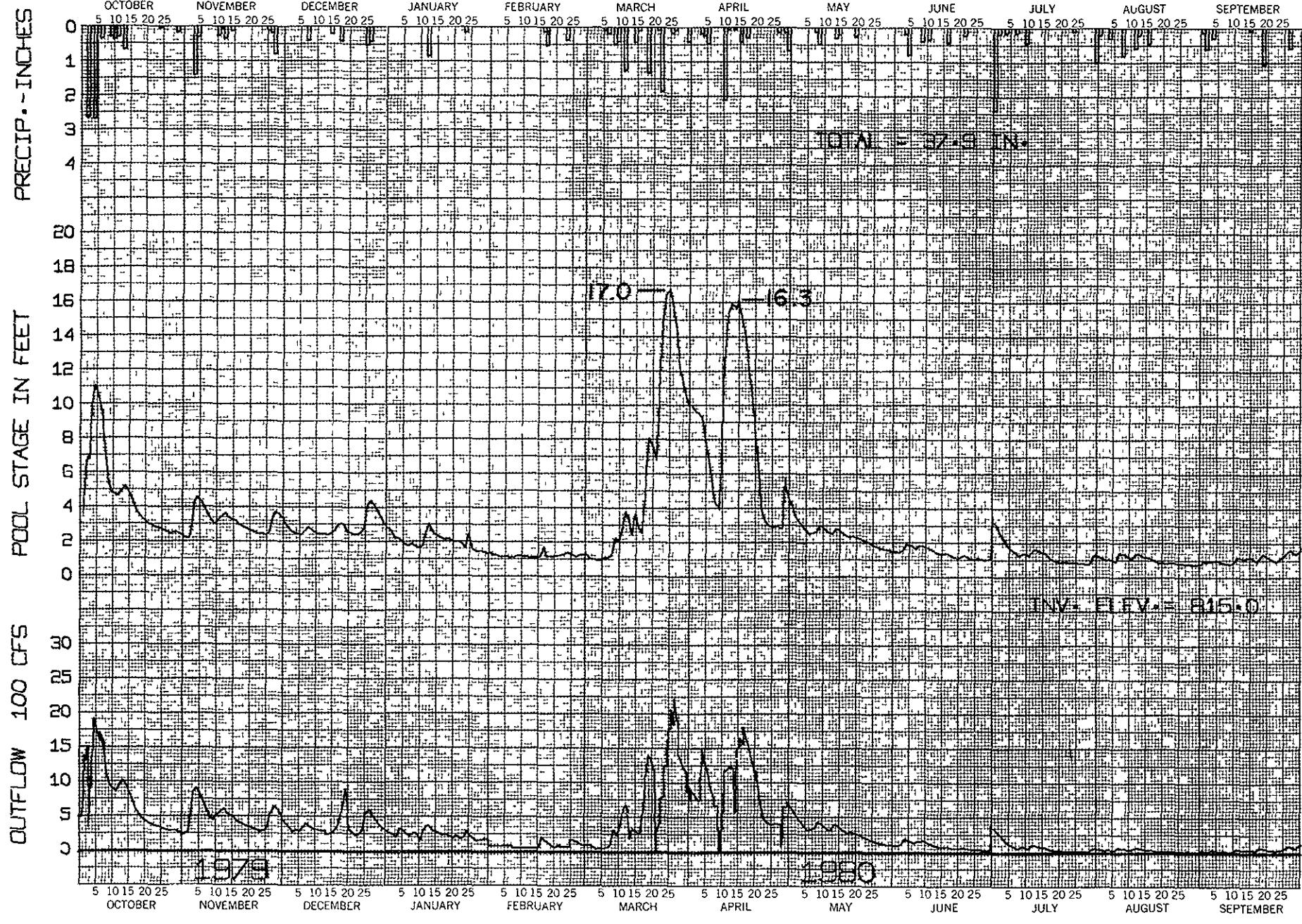
RESERVOIR REGULATION - TOWNSHEND LAKE





RESERVOIR REGULATION - OTTER BROOK LAKE

PLATE 12

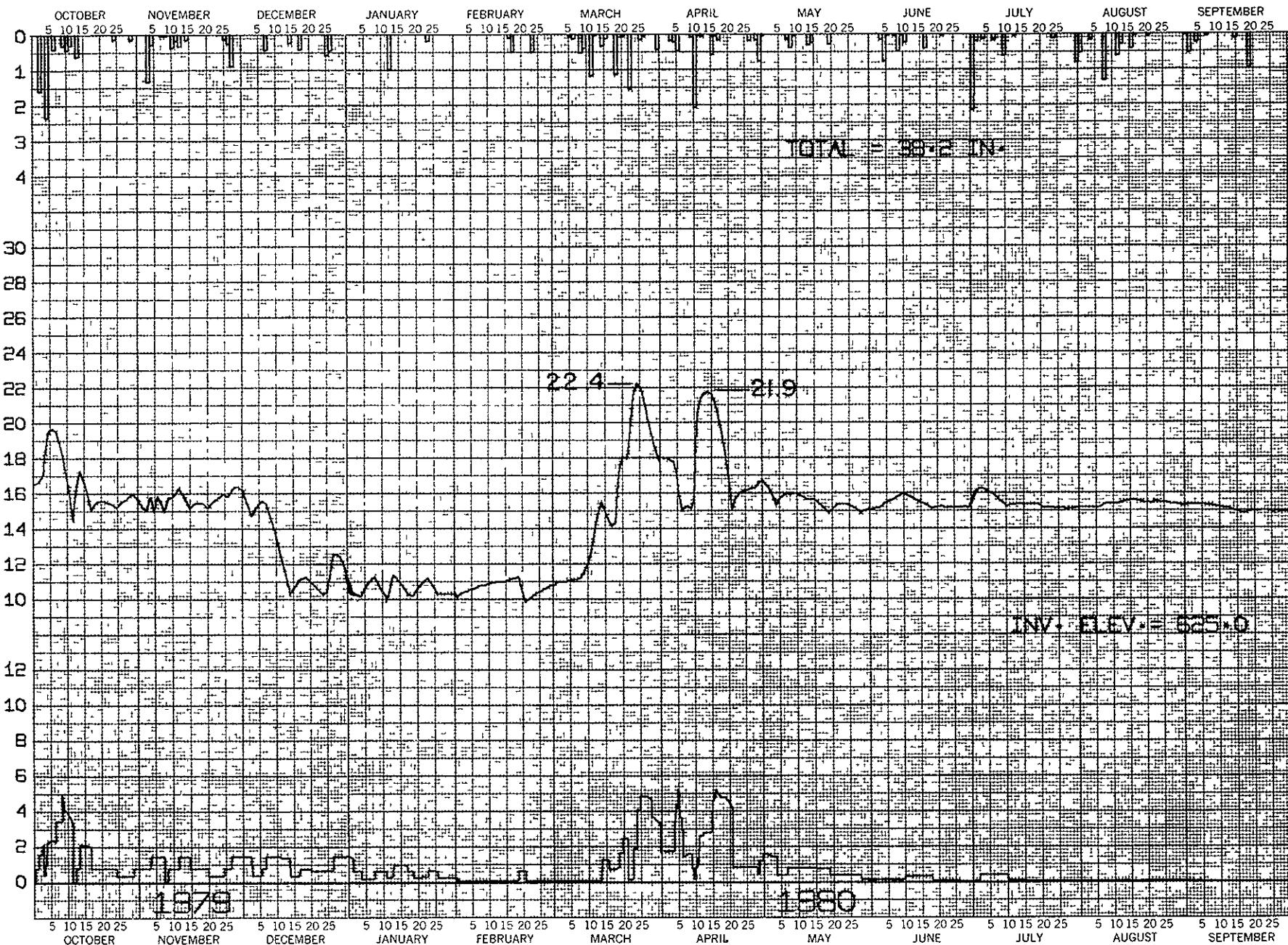


RESERVOIR REGULATION - BIRCH HILL DAM

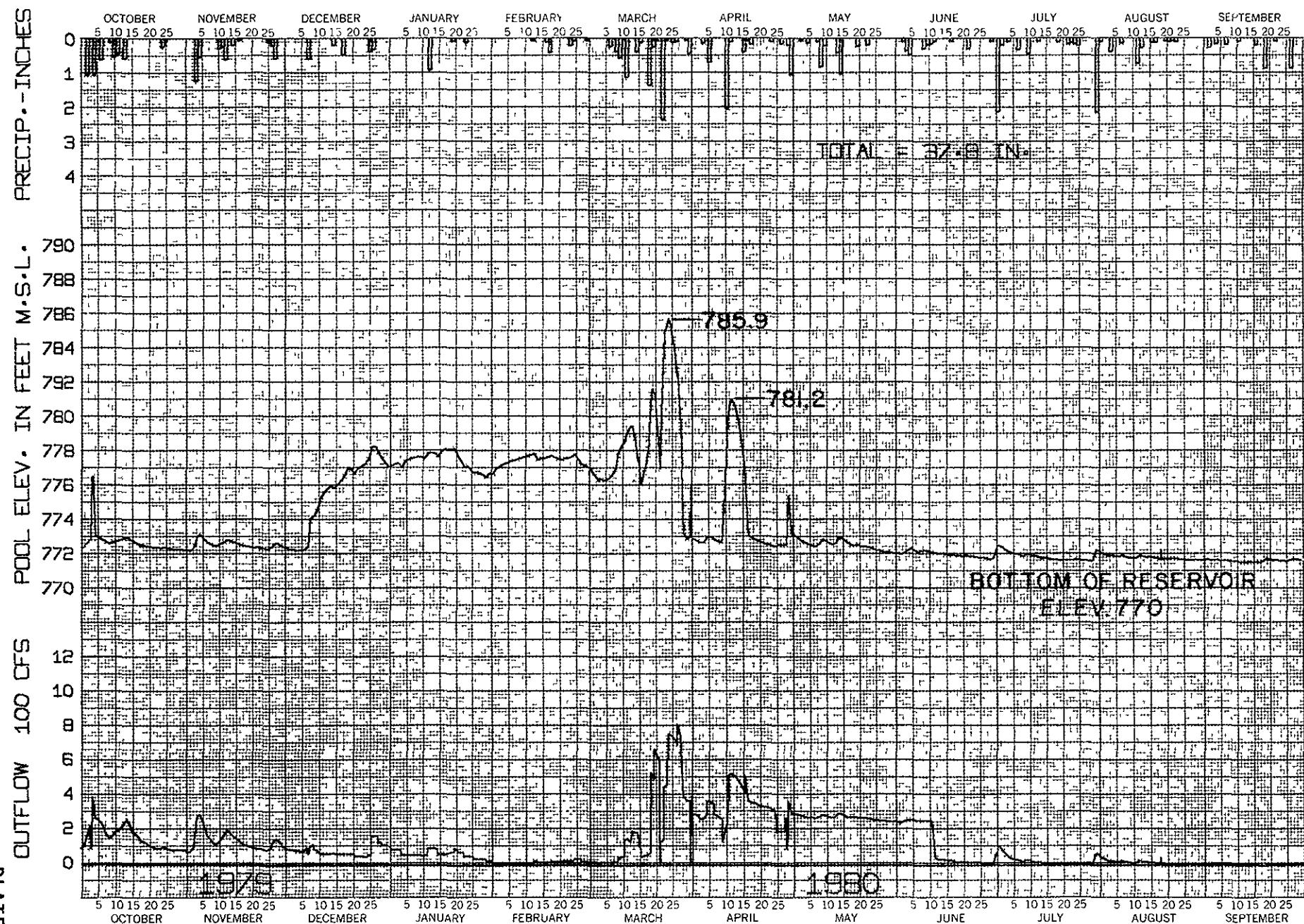
PRECIP. - INCHES

OUTFLOW 100 CFS

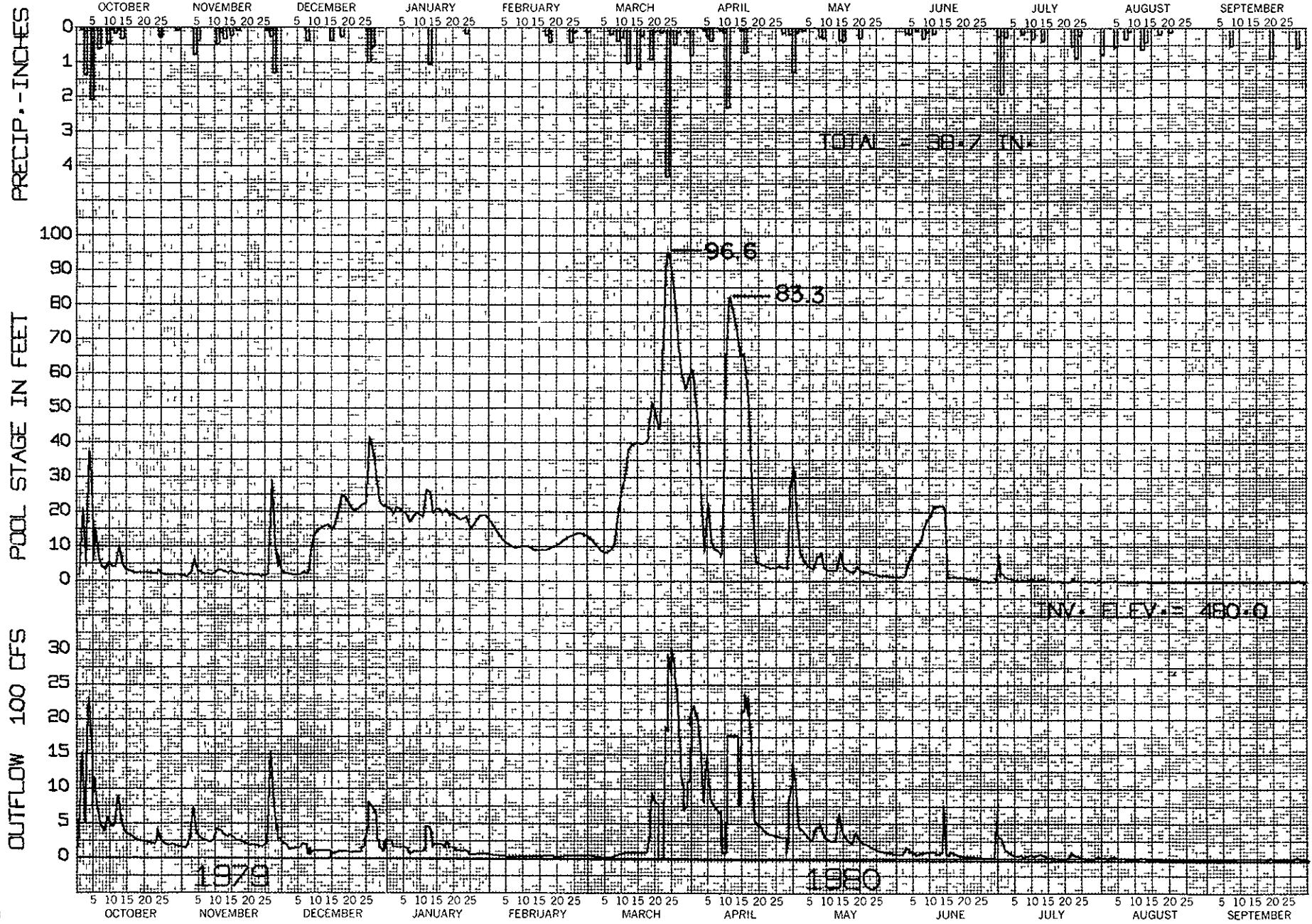
PLATE 13



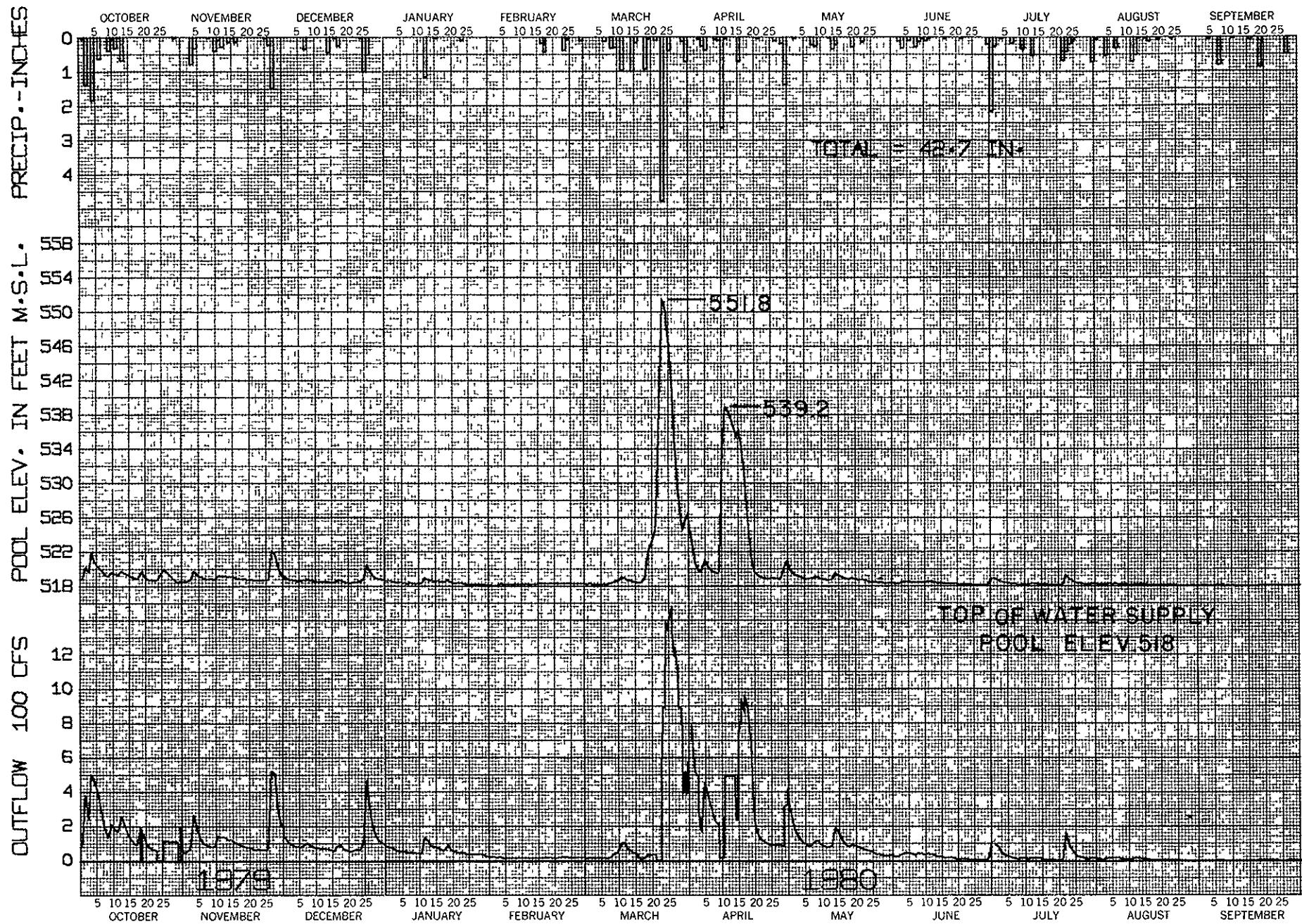
RESERVOIR REGULATION - TULLY LAKE



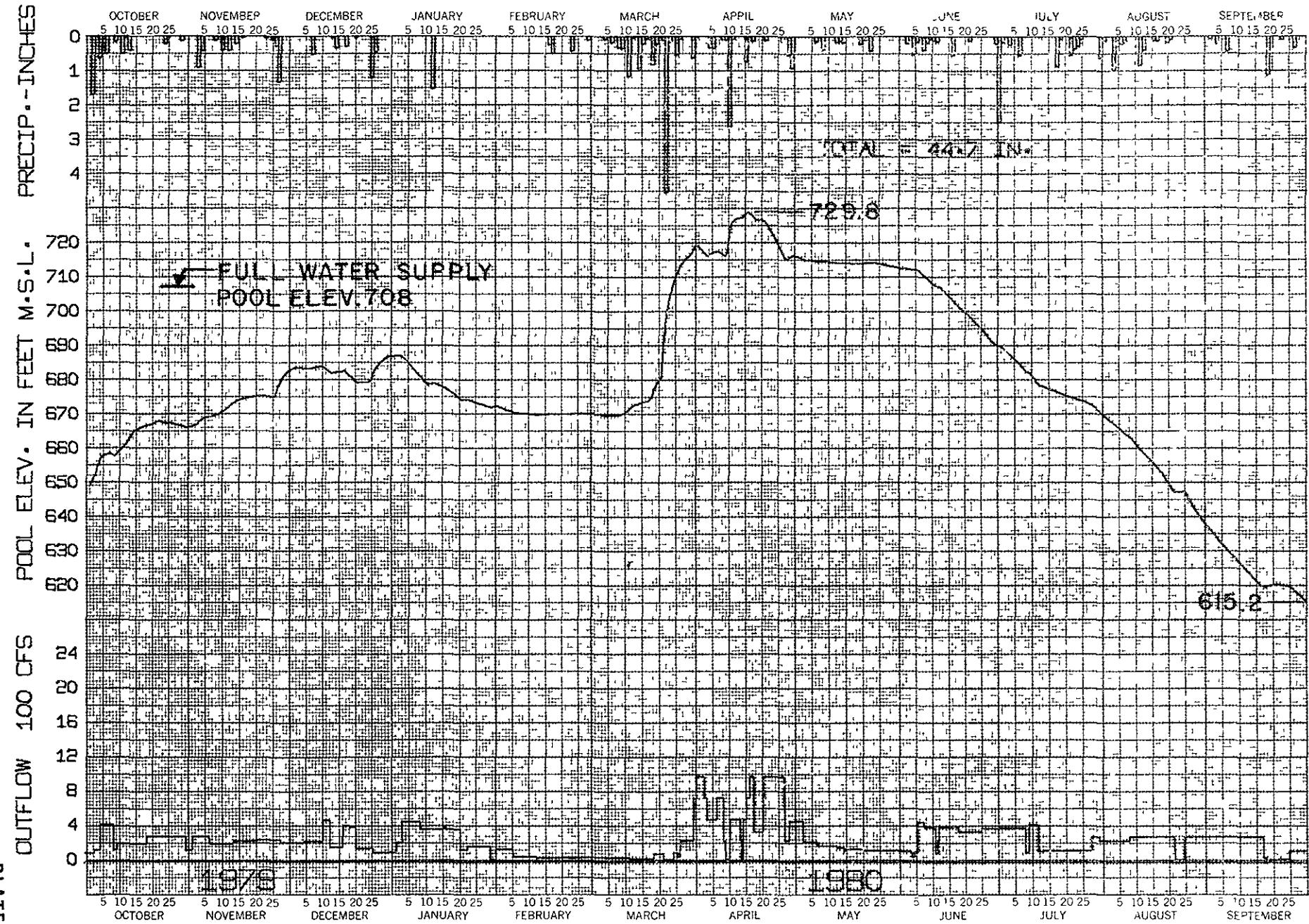
RESERVOIR REGULATION — BARRE FALLS DAM



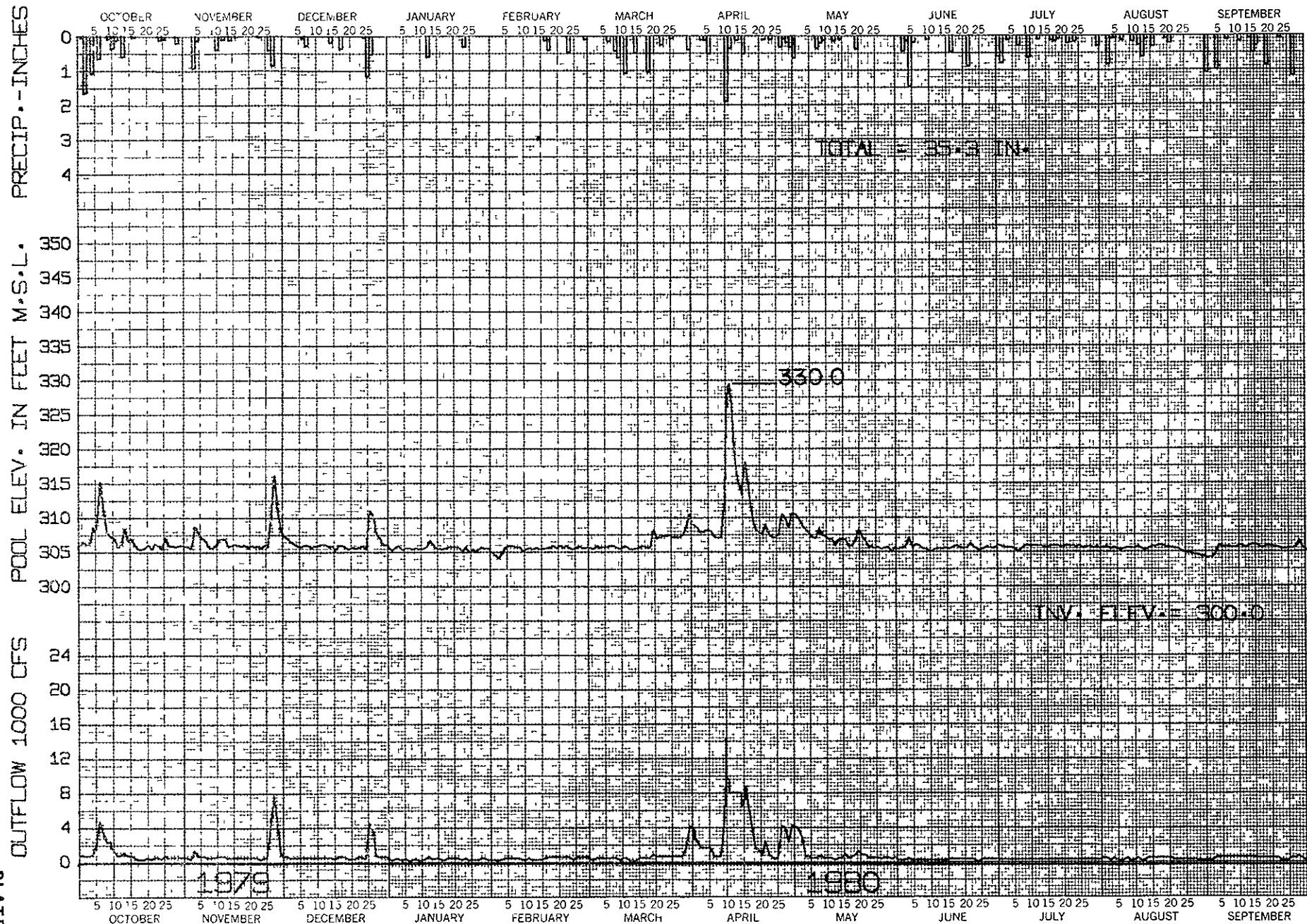
RESERVOIR REGULATION - KNIGHTVILLE DAM



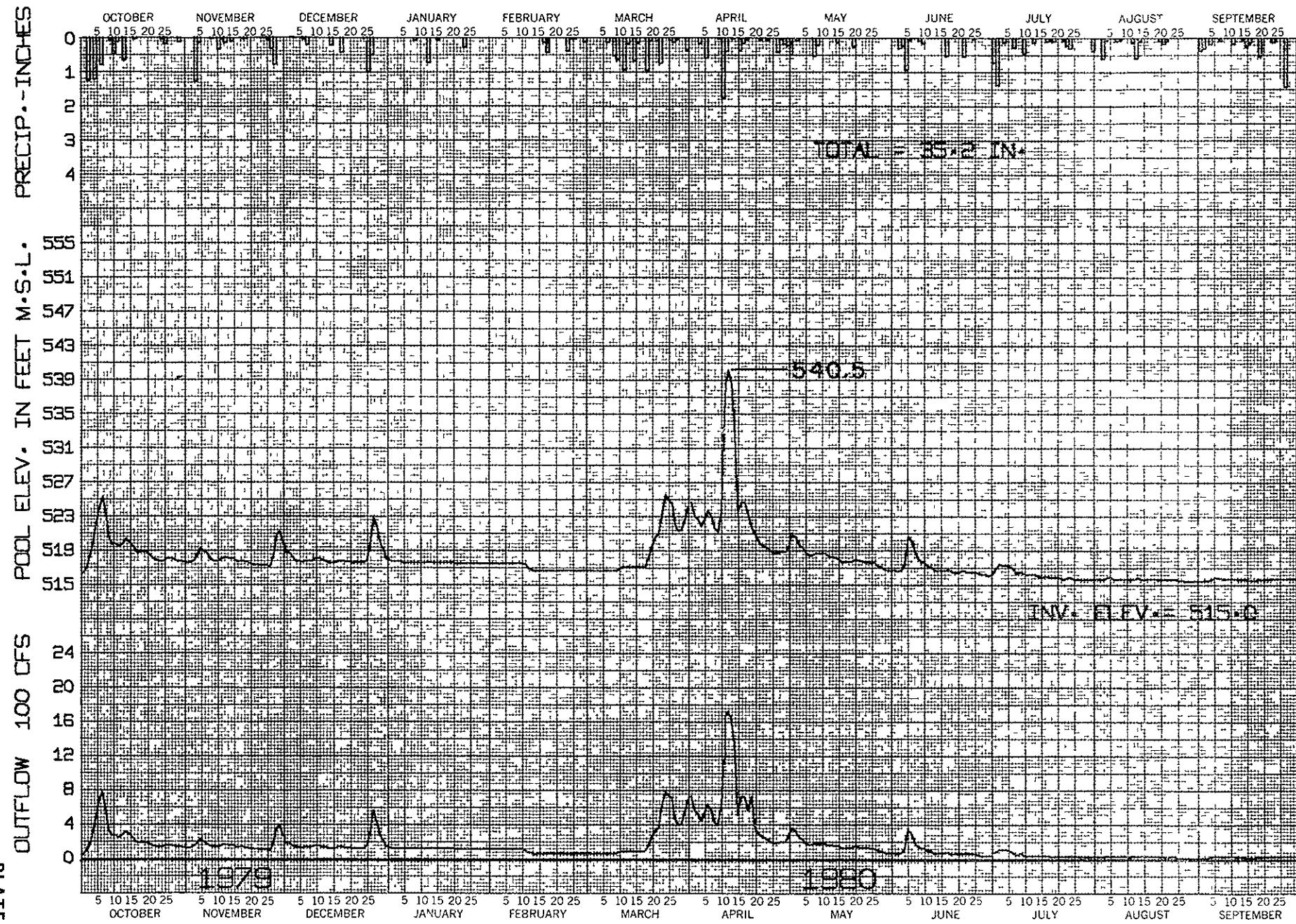
RESERVOIR REGULATION - LITTLEVILLE LAKE



RESERVOIR REGULATION - COLEBROOK RIVER LAKE



RESERVOIR REGULATION - FRANKLIN FALLS DAM



RESERVOIR REGULATION - BLACKWATER DAM



DEPARTMENT OF THE ARMY  
NEW ENGLAND DIVISION, CORPS OF ENGINEERS  
424 TRAPELO ROAD  
WALTHAM, MASSACHUSETTS 02154

*In library*

REPLY TO  
ATTENTION OF

NEDED-W

29 December 1980

Director  
New England River Basins Comm.  
53 State Street  
Boston, MA 02109

Dear Sir:

A copy of the Annual Report for the Reservoir Control Center,  
Fiscal Year 1980, is inclosed for your information.

Sincerely,

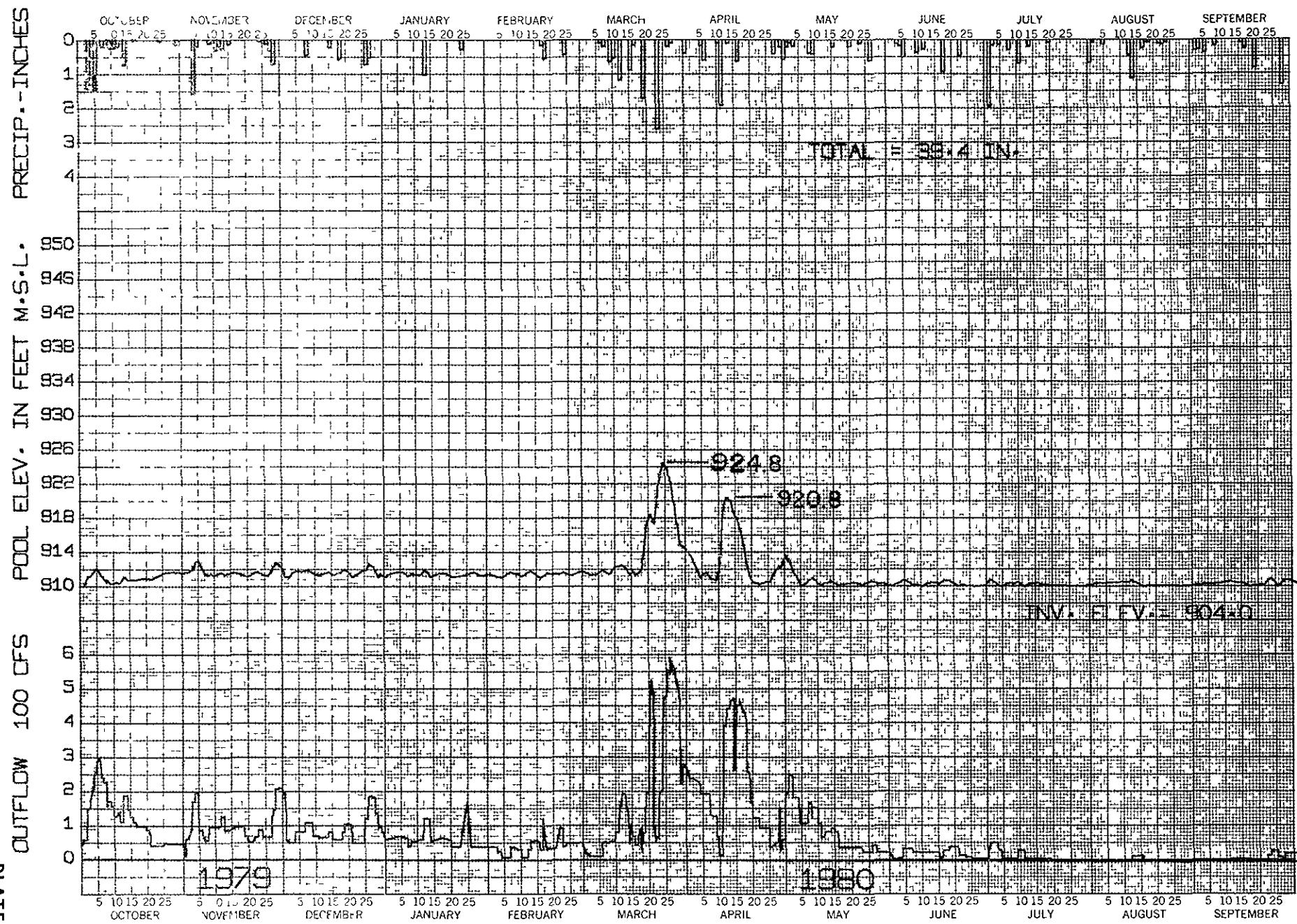
*George J. Sarandis*  
*for* JOE B. FRYAR  
Chief, Engineering  
Division

1 Incl  
As stated

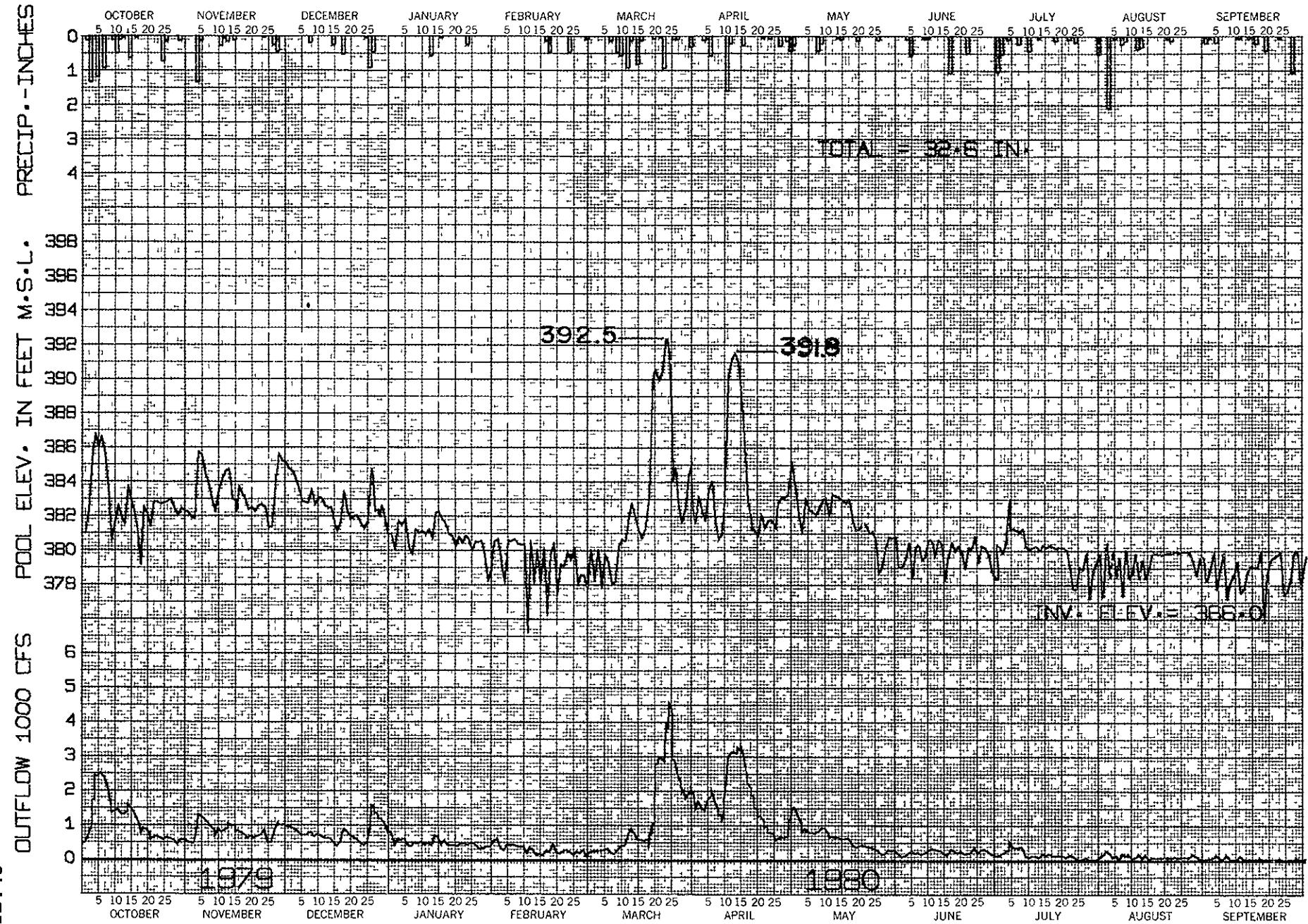
NEW ENGLAND RIVER & BASINS MISSION  
REC - D

DEC 29 1980





RESERVOIR REGULATION - EDWARD MACDOWELL DAM



RESERVOIR REGULATION - HOPKINTON LAKE

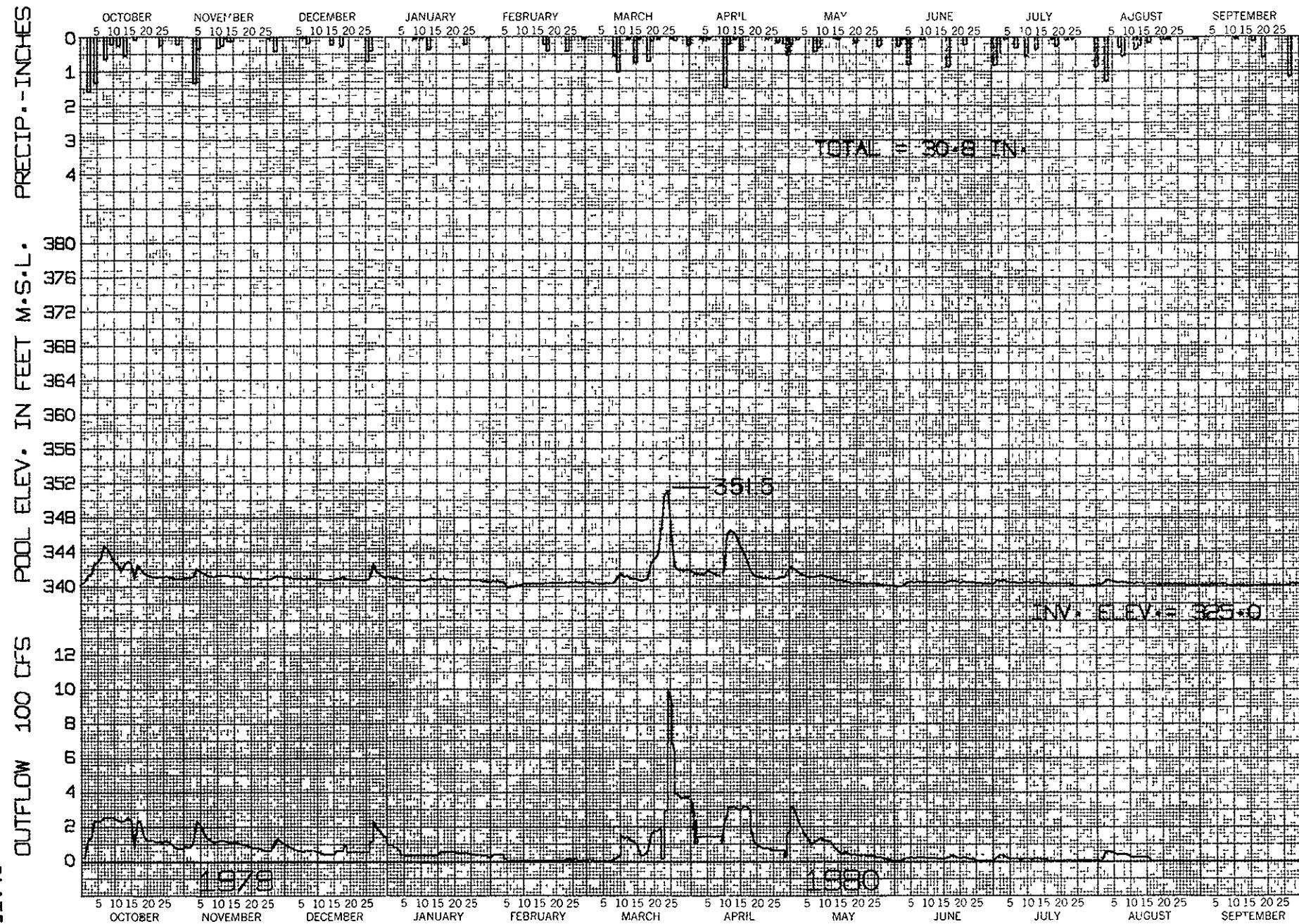


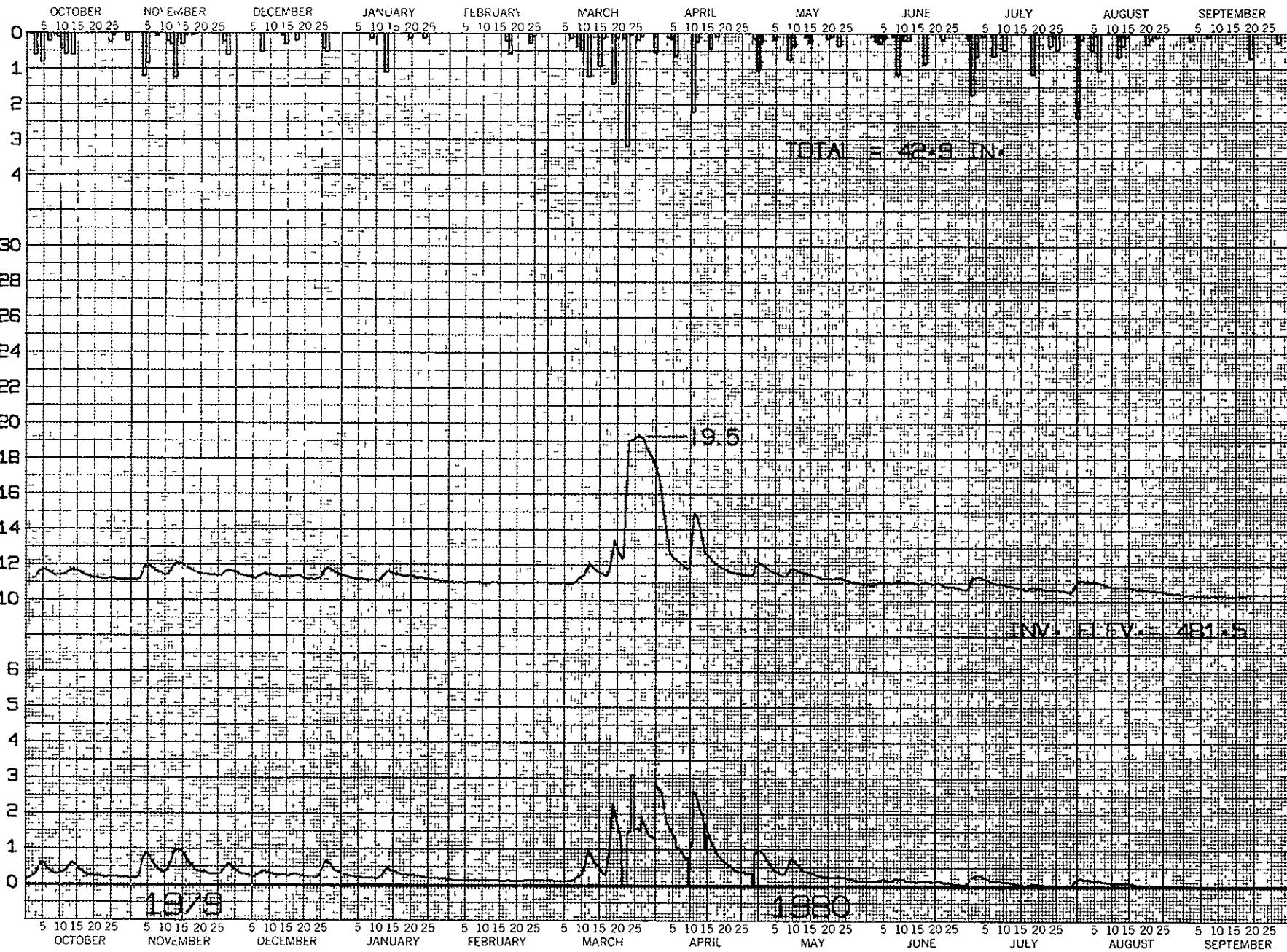
PLATE 22

RESERVOIR REGULATION - EVERETT LAKE

PRECIP. - INCHES

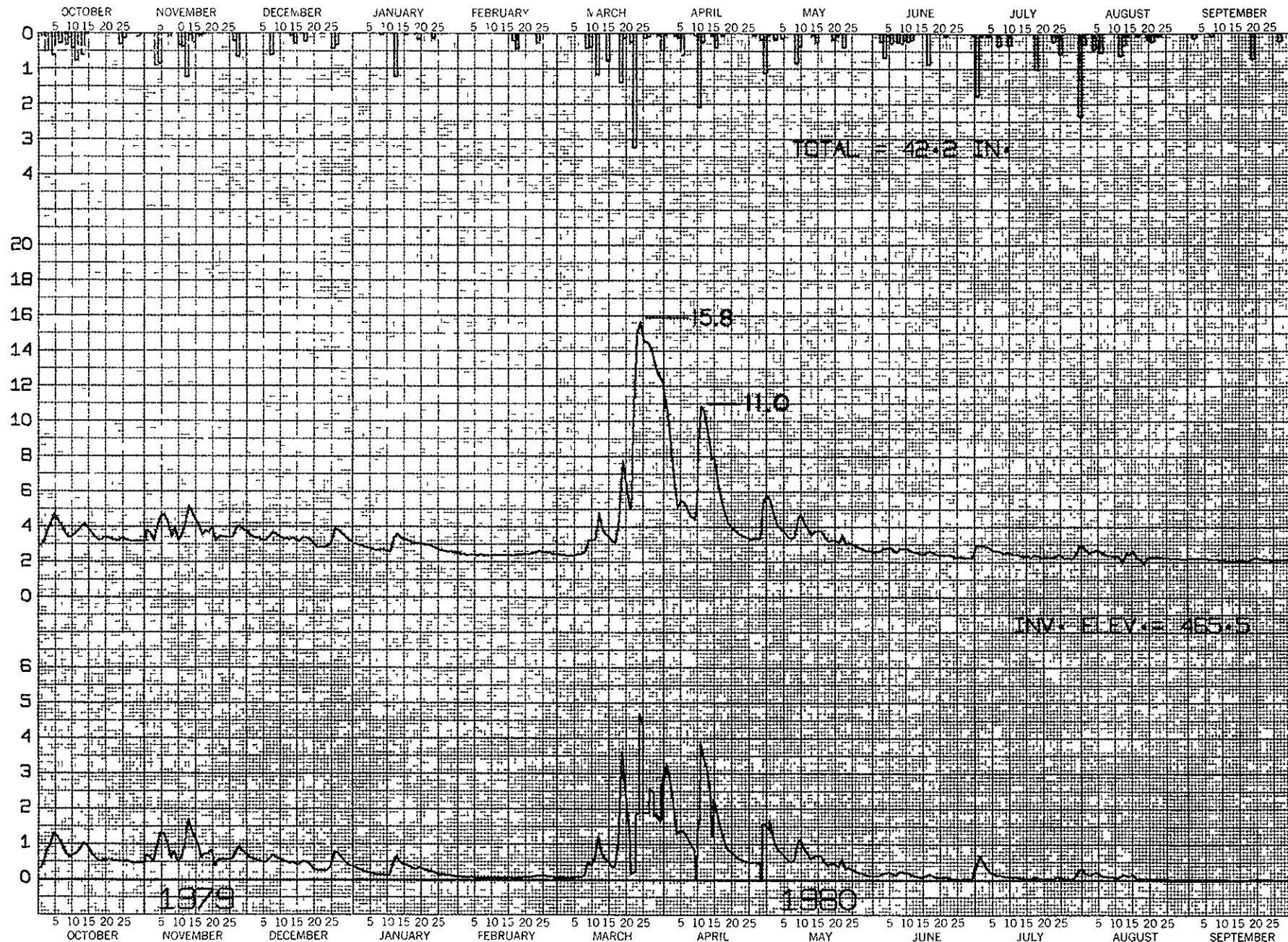
OUTFLOW 100 CFS POOL STAGE IN FEET

PLATE 23



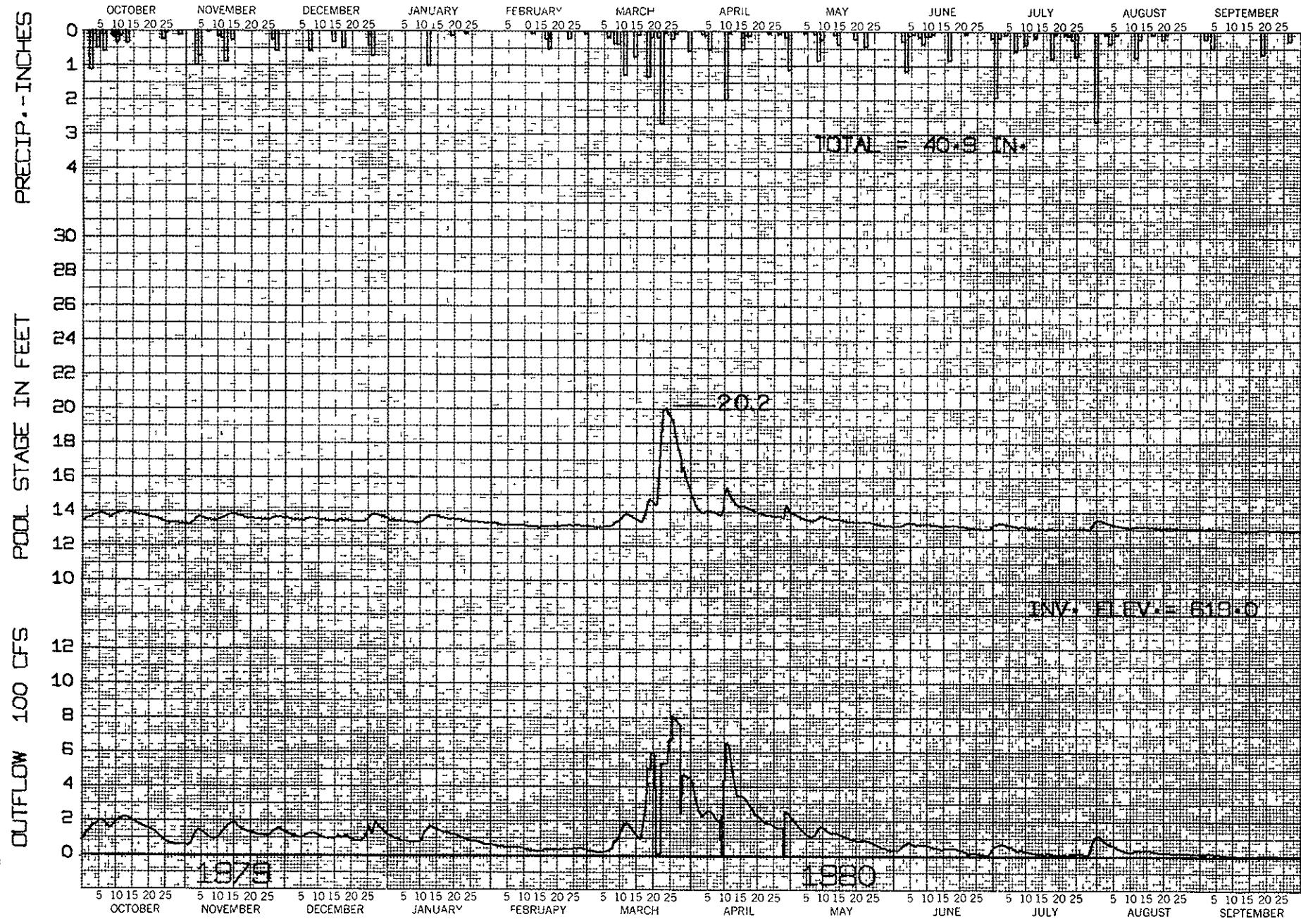
RESERVOIR REGULATION - BUFFUMVILLE LAKE

PLATE 24



RESERVOIR REGULATION - HODGES VILLAGE DAM

PLATE 25



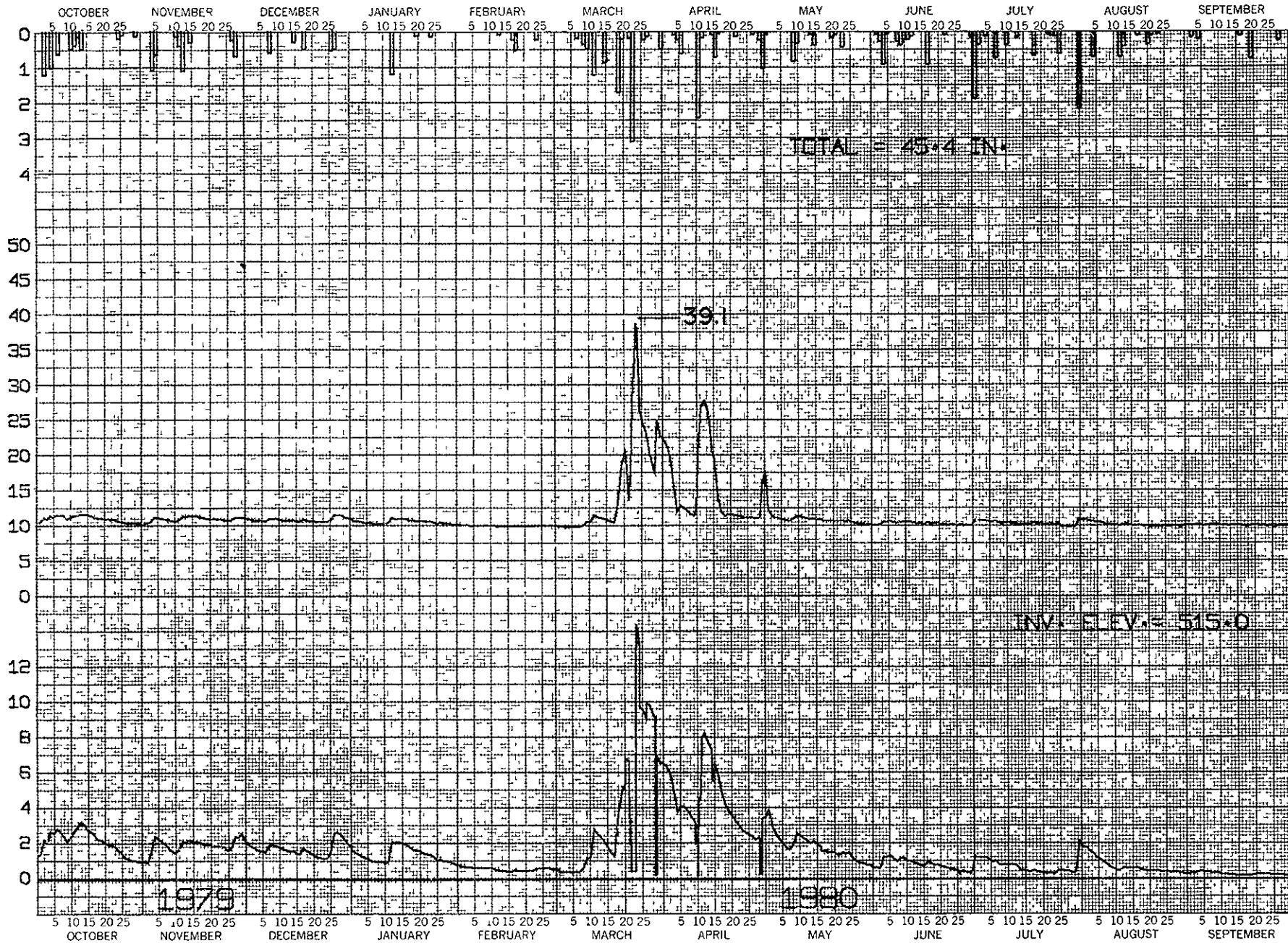
RESERVOIR REGULATION - EAST BRIMFIELD LAKE

PRECIP.-INCHES

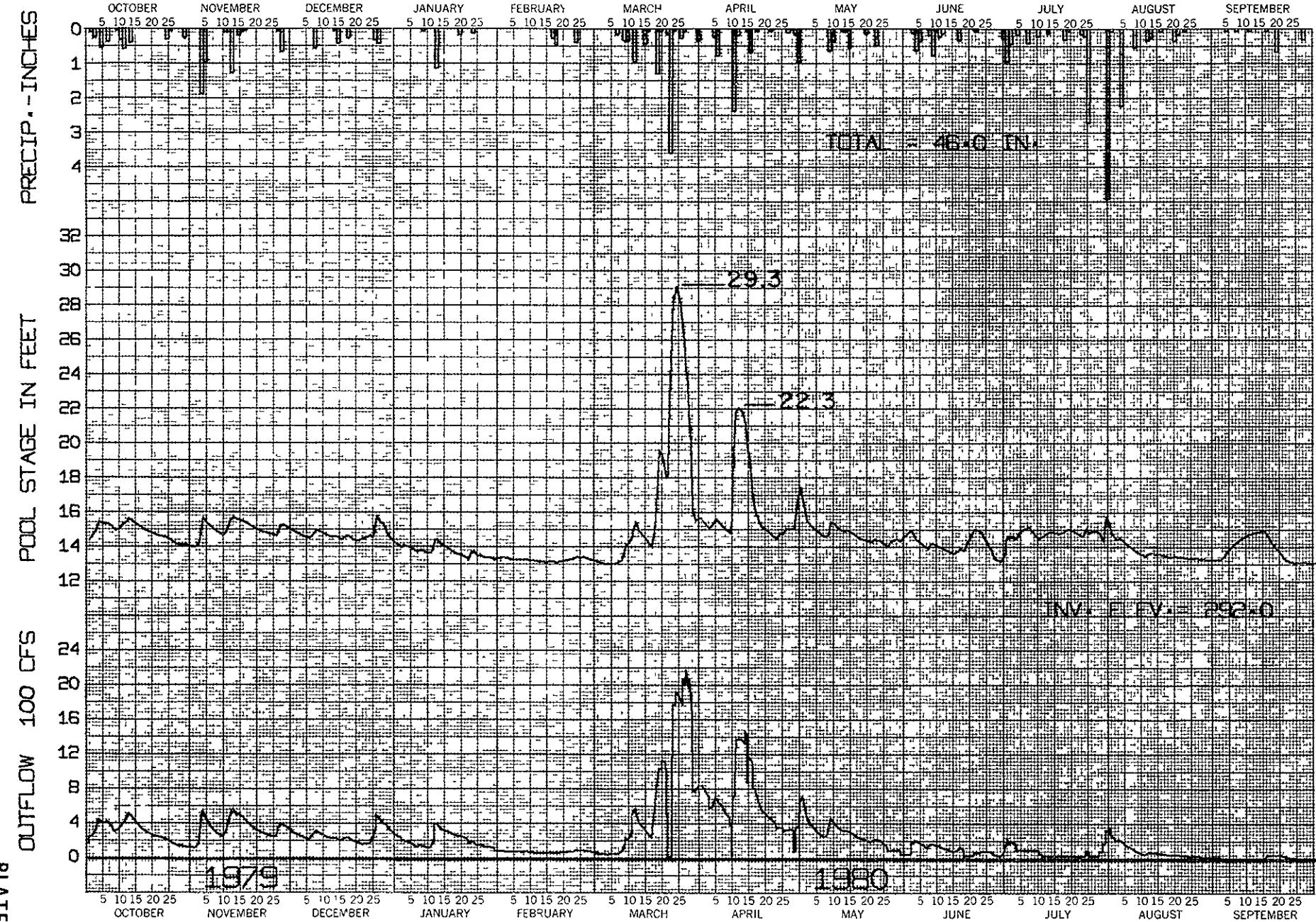
PCOL STAGE IN FEET

OUTFLOW 100 CFS

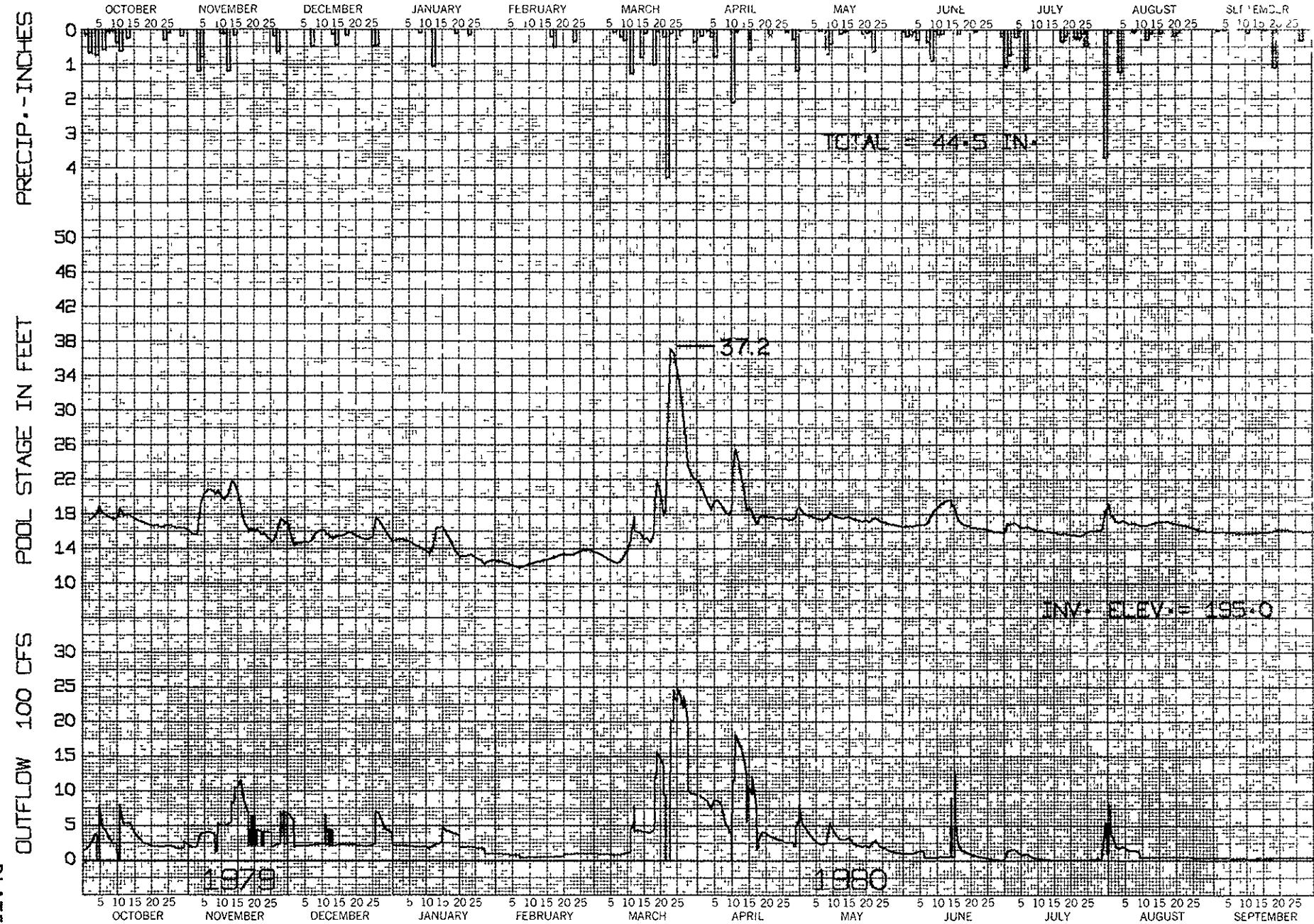
PLATE 26



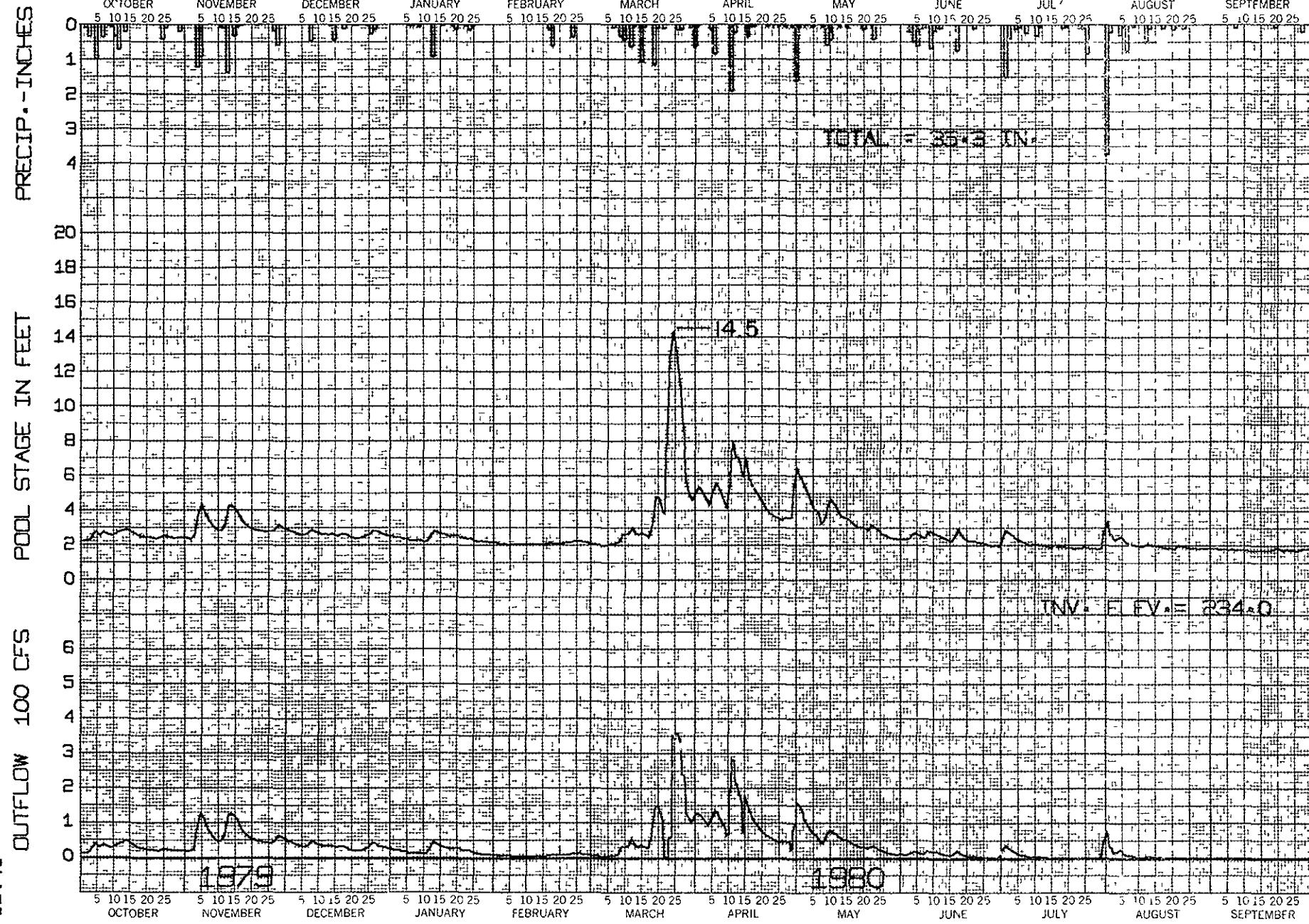
RESERVOIR REGULATION - WESTVILLE LAKE



RESERVOIR REGULATION - WEST THOMPSON LAKE



RESERVOIR REGULATION - MANSFIELD HOLLOW LAKE



RESERVOIR REGULATION - WEST HILL DAM

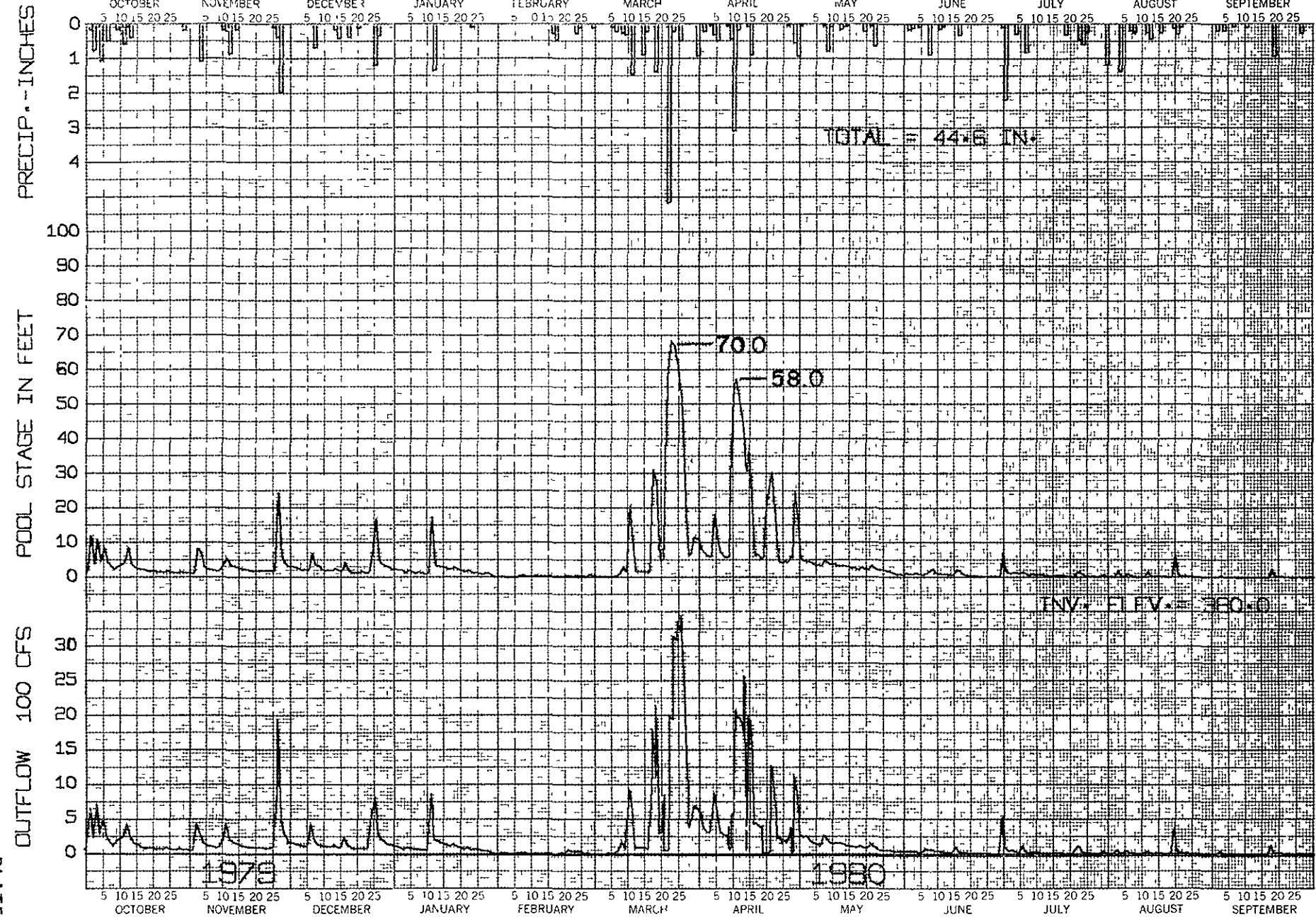
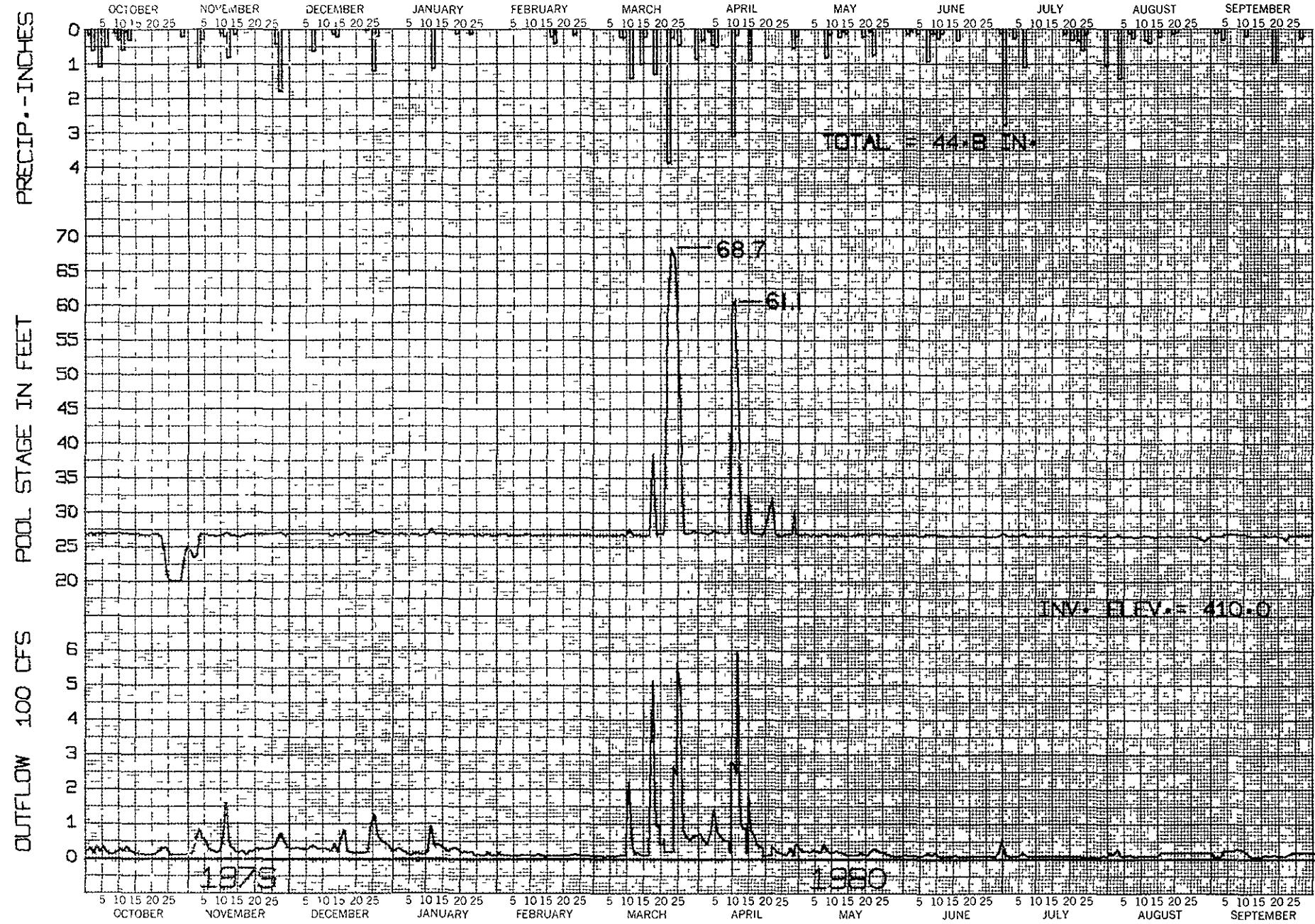


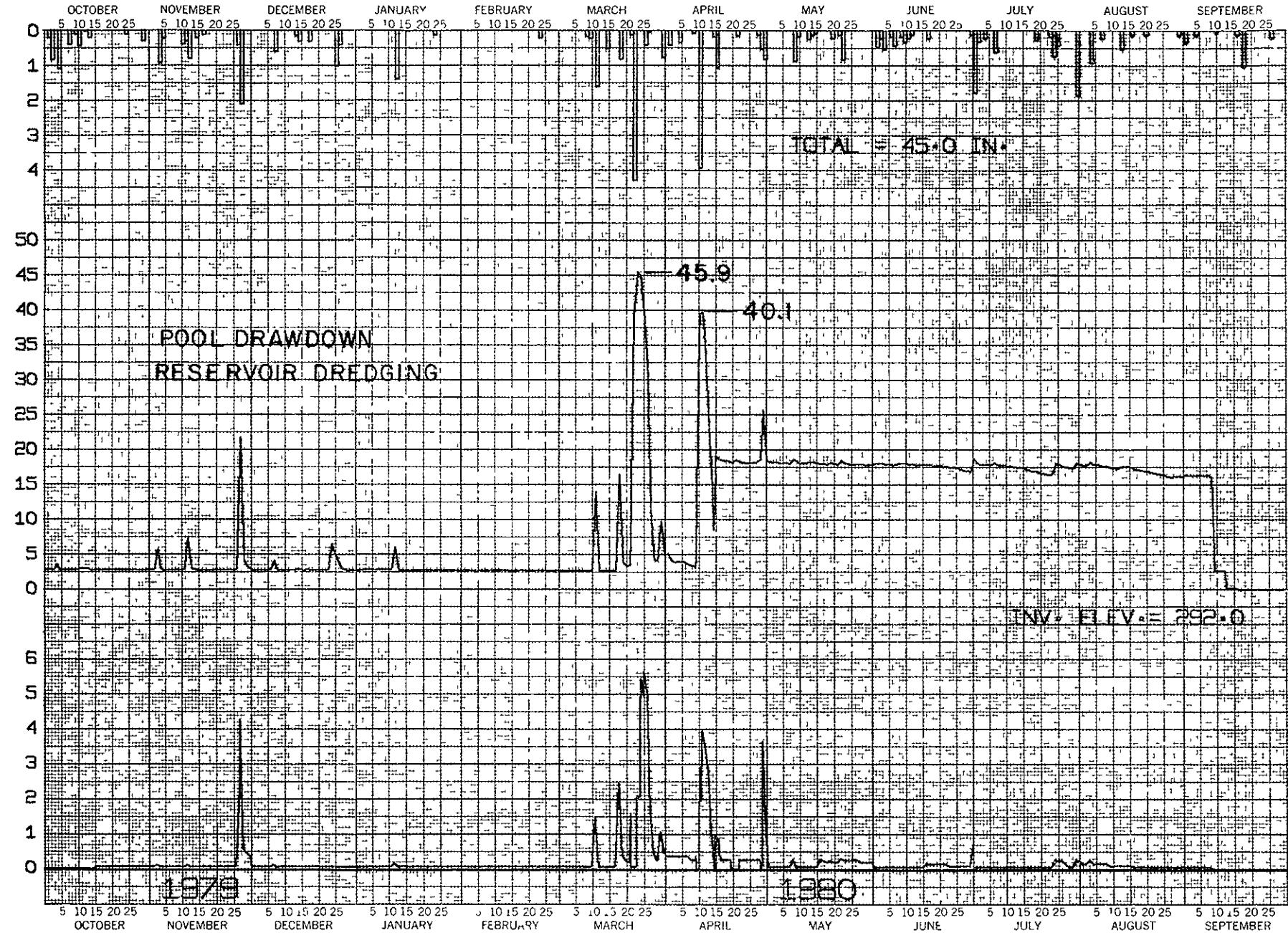
PLATE 30

RESERVOIR REGULATION - THOMASTON DAM



RESERVOIR REGULATION - BLACK ROCK LAKE

PRECIP. - INCHES



RESERVOIR REGULATION - HOP BROOK LAKE